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THE LOGICO-SCIENTIFIC STATUS OF SELECTED THEOLOGICAL CONCEPTS

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THIS STUDY PROPOSES TO DO THREE THINGS:

One, to demonstrate through the application of certain logico-scientific concepts to the linguistic symbols of Christian theology, that in general such symbols have no denotational or extensional import; that their meanings are strictly intensional or conceptual; and because of this their usages can never legitimately go beyond the limits of a *formal* definitional system—that is, they can never make legitimate claim to any actual relationship with objective reality.

Two, the study proposes to demonstrate that theological propositions are analytic in character; that, in actuality, they are disguised definitions used *as if* they were synthetic propositions;[1] that since they are disguised definitions and since they have no denotative import they are actually pseudo-propositions, and as such are not subject to truth claims.

Three, to explore some implications germane to the study as a whole in relation to the question of religion in public education.

The following procedures will be used in demonstrating the fore-going propositions: Part I is a statement of certain logico-scientific presuppositions which are germane to our task; Part II is an analysis of selected theological terms and

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[1]By "synthetic" proposition, we mean those propositions which can be certified as true or false by applying the canons of scientific research. Among other things this means empirical verification by any disinterested and competent observer.

propositions in the light of the logico-scientific assumptions given in Part I; Part III concerns some observations concerning religion in public education which seem to grow out of the study as a whole.

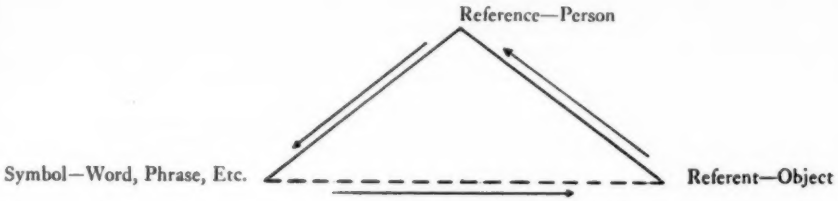
SOME LOGICO-SCIENTIFIC ASSUMPTIONS:

As the reader well knows, the following statements comprise some of the common working tools of the logician and scientist.

1. In the linguistic situation, naming is a purely arbitrary device. Its purpose is one of convenience in facilitating the processes of communication. Names stand for something, either things or ideas. Of course, names are neither right nor wrong.

2. By linguistic stipulation, names have *denotative* and *connotative* meaning. A name is denotative when it designates, or points to, an object or a group of objects. Proper names are denotative, as pointing demonstratively to a particular man, "that is Adam Smith." Proper names should not be used if there is no actual existent which can be so pointed to. Proper names have denotation but no connotation. A name has connotation when it signifies a quality or attribute of an object. Connotation is concerned with the relation between a name (symbol) and other concepts which are represented by the name or for which the name is a symbol. It is possible, therefore, that proper names can be defined connotatively even when meaning less denotatively, but defined as if they had definite denotative significance. When it is indicated that denotative names refer or point only to actual existents, it is not intended to imply that denotation without definite sensory objects is linguistically or logically illegitimate in so far as existence is concerned. But there are kinds of existences of which we indicate two: *empirical* existents such as "that house," "the White House on Pennsylvania Avenue," "Beethoven's Concerto No. 1 in C, Opus 15, which is now playing on my record player," etc., all of which are capable of direct sensory verification. On the other hand there are *logical* or *verbal* existents which, in so far as can be discerned, are strictly linguistic and conceptual in nature, such as "Paul Bunyan the incredibly powerful wood-chopper," "The Oracle of Delphi," "The Happy Hunting Ground of the American Indian," etc. Logicians do insist that these differentia between *actual* and *ideal* existents must be sharply maintained if the informative function of language is to be preserved.

3. Symbols or terms become meaningful in at least three ways: (1) direct acquaintanceship with the object through the senses; (2) indirect or vicarious acquaintanceship with the object through description; and (3) by relating and identifying terms which are unknown with other terms which are known. This last is, of course, strictly formal definition. Methods (1) and (2) yield synthetic or empirical meanings—meanings which can be corroborated through observation and experimentation. Matters-of-fact, or objective existence can be affirmed concerning the referents of such symbols. . . . An analysis of the Odgen-Richard representation of the symbolic situation supports this point of view:



In the above triangle, "meaning" begins with the referent or object in the external world. As the arrow indicates, it moves, through sensa or stimuli to the Reference or Observer who gives cognitive status to his impressions and ascribes symbols or names to these impressions. To be meaningful the symbols must, in turn, point to the objective referent. *No referent means no existence.* The relation between the word or symbol and the definite thing for which it stands is what we mean by "meaning." *This relationship must be one that yields to sensory verification.*

Method (3) may be handled as follows: The symbol of formal definition yields no external referent. The movement on the triangle is incomplete, in that it is from Reference to Symbol and back to Reference, etc; it never crosses the base from symbol to referent. We choose to call this "shunting off" process an intellectual short-circuit. What we appear to have in such instances are abstractions which are germane only to the activity of the mind, or what some call logical constructs. Such terms have no denotative meaning. Method (3) can yield only abstract meanings. To give denotative meaning to such constructs is to commit the fallacy of hypostatization.

A very subtle logical danger lurks in such formal definitional systems: Men frequently start these systems by defining concepts with other concepts—strictly on the Reference-Symbol side of the semantic triangle. The formal definitional concepts are employed as principles of explanation but with no denotative significance. Then an almost imperceptible transformation takes place: These symbols are no longer explanatory devices only, but actual, genuine existents. Two examples support this assertion: 1) At one time it was assumed that to travel at all light must have some medium through which to travel. "Ether" was postulated as the necessary explanatory principle by which transmission was possible. Ether finally became a *thing* until exploded by the Michelson-Morley experiments, when it was deleted from scientific nomenclature; 2) Absolute time became a *thing* in Newtonian physics, only to be recognized finally as a logical construct and deleted from scientific terminology. Both "ether" and "absolute time" were definitional or conceptual in origin; neither was capable of empirical observation or verification; both were finally recognized as purely analytic concepts incapable of supporting truth claims.

Two quotations point up the need for caution in hypostatizing abstract symbols. The first is from P. W. Bridgman. He writes:[2]

[2]P. W. Bridgman, *The Logic of Modern Physics* (New York: The Macmillan Company, 1927), p. 7.

> "Concepts can be defined only in the range of actual experiment, and are undefined and meaningless in regions as yet untouched by experiment. It follows that strictly speaking we cannot make statements at all about regions as yet untouched, and that when we do make such statements . . . we are making conventionalized extrapolations, of the looseness of which we must be fully conscious, and the justification of which is in the experiment of the future."

Into this same logical danger Pearson writes,[3]

> "*To no concept*, however invaluable it may be as a means of describing the routine of perceptions, *ought phenomenal existence to be ascribed until its perceptual equivalent has been actually disclosed.*"

4. Categorical propositions are of two kinds: one, synthetic or empirical; and two, analytic. A synthetic proposition is one which can be affirmed to a high degree of probability by observation and experimentation. An analytic proposition is one that can be established by definition—that is, by stipulation of (verbal) meaning. Truth or falsity may be affirmed of synthetic propositions. Analytic propositions are neither true nor false; they are adequate or inadequate, satisfactory or unsatisfactory, etc.

5. Language has several functions: Informative, poetic, practical, emotional, etc. In this study our concern is with the informative or logical function. The fundamental differentia separating the informative function from the other functions is that informative truth claims can be tested and verified empirically. Such verification is, of course, public in nature. Informative propositions are synthetic in character as opposed to the analytic character of the other types of functions.[4] The informative proposition is the only type about which truth claims can be asserted.

ANALYSIS OF SELECTED THEOLOGICAL TERMS AND PROPOSITIONS

In this part of our study, we wish to examine certain selected major terms and propositions of theology from the point of view of the above logico-scientific assumptions. It is the thesis of this paper that such an examination will reveal that these theological terms and propositions are incapable of satisfying the demands and stipulations governing the informative or cognitive use of language; that theological symbols, in general, are abstractions; that theological propositions are in fact pseudo-propositions; and finally that theological language is limited to emotive and practical functions.

The concept "God" has been selected for analysis because it is structurally fundamental in most theological systems.

God: The diversity of meanings of this symbol make it practically unfeasible to consider it as a unitary concept. This multiplicity of meaning does violence to the logical law of Identity, which demands that A is A, or that there shall be a 1 to 1 relationship between a symbol and its referent. It must be apparent that one cannot examine the concept "God" *per se*, for to do so would involve the

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[3]Karl Pearson, *Grammar of Science* (New York: The Macmillan Company, 1927), p. 277 (Italics mine).

[4]*Supra*, Rubic 4.

selection of one stipulated meaning from a bewildering multiplicity of meanings. To surmount this difficulty of ambiguity, it is proposed here to examine the opinions of selected men, as these opinions have found expression in theological writings. To these opinions we now turn.

E. Y. Mullins—Professor Mullins gives the following definition of God:

> "God is the supreme personal spirit; perfect in all his attributes; who is the source, support, and end of the universe; who guides it according to the wise, righteous, and living purpose revealed in Jesus Christ; who indwells in all things by his Holy Spirit, seeking ever to transform them according to his own will and bring them to the goal of his Kingdom."[5]

Critique:

1. Mullins is helpful in this analysis. He prefaces the above conception of God with the statement: "We begin with a definition of God, as follows. . . ."

2. Symbols acquire meaning in three ways: 1) direct acquaintance through the senses with the object for which the symbol stands; 2) indirect or vicarious acquaintance through description ultimately traceable to sense data; and 3) acquaintance through relating the symbol to other symbols. Some logicians call this synonymous definition.

Mullins' definition has no denotative significance—that is, it points to no observable or verifiable object in the external world. Hence it must be a synonymous definition. If placed on the Odgen-Richards semantic triangle, the meaning-movement is from Reference to Symbol or Symbol to Reference. One does not see how such terms could move from Symbol to Referent. Perhaps Mr. Mullins would insist that his symbol has denotative significance. If so, the burden of proof rests with Mr. Mullins. Let him, by a simple act of pointing, denote the object. We would insist that the object be capable of public sensory verification.

3. It is argued here that Prof. Mullins is operating strictly within the framework of a definitional system. Any claims to truth or to reality are purely formal, and as such they may or may not have genuine relationship to the nature of things.

4. It is presumed here that Mr. Mullins intends that his definitions have informative content. This cannot be allowed since the series of propositions are strictly analytic or verbal. *Propositions which are incapable of public verification are pseudo-propositions and hence meaningless.* Both Pearson and Bridgman write into this problem: Bridgman writes,

> "Concepts can be defined only in the range of actual experiment, and are undefined and meaningless in regions as yet untouched by experiment. . . ."[6]

Pearson writes,

> "To no concept . . . ought phenomenal existence to be ascribed until its perceptual equivalent has been actually disclosed."[7]

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[5]E. Y. Mullins, *The Christian Religion in Its Doctrinal Expression* (Philadelphia: The Judson Press, 1917), pp. 214–215.

[6]Bridgman, *Loc. Cit.*

[7]Pearson, *Loc. Cit.*

5. In summary of Mullins' position we state that:

a) If Mullins insists that his symbol "God" has a referent, then he has committed the fallacy of hypostatizing abstract terms.

b) If our analysis of Mullins' definition is correct, then: 1) Mullins' "God" is strictly conceptual with no denotative import; 2) that it possesses no demonstrable relationship with the nature of things; and 3) that any propositions derived from the definition are pseudo-propositions hence meaningless, and 4) that it has no informative function—except perhaps, as it helps us to understand something of the nature of Mr. Mullins' thought processes.

Karl Barth—Barth's concept of God as given here is abstracted from H. N. Wieman's analysis:[8]

> *God is absolutely other,* meaning that there is no aspect of forms of nature, no achievements of the human reason . . . that can be identified with God. . . . God is a dark abyss, a mystery. . . . God has his own ways and they are different from ours. . . . God is absolutely sovereign. His power is without limit. . . . *God is super-rational.*

Critique:

1. If God is super-rational, if God is a dark abyss, a mystery, and if God is absolutely other, then the instruments of semantics or of logic do not apply to this neo-supernaturalistic position.

2. Since the statements made in rubric (1) are but re-statements of Barth's own opinions, we may conclude, in terms of logico-scientific assumptions, that Barthian symbols and propositions are meaningless. Such use of language drains all intelligibility from communication. Hence we *drop this point of* view with the observation that it epitomizes irrationality.

Edgar S. Brightman—Our analysis of Professor Brightman's philosophy is from his statement to *The Crozier Quarterly*,[9] October 1928, and from his book, *A Philosophy of Religion*. It is not always easy to distinguish between what he believes and what he asserts informatively. In one place, he writes: "Personalism may be taken to be that philosophical system which *holds* (italics mine) that the universe is a society of selves, unified by the will of a Supreme Self. . . ."[10] In another context, he writes: "A real, personal, creative, and active God is, the personalist *believes* (italics mine), the only being. . . ."[11] Still in another place, he writes: "But personalism is not chiefly a philosophy of religion. It is an objective, truth seeking philosophy based on the logic of coherence, a synoptic method, an epistemological dualism. . . ."[12]

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[8]H. N. Wieman, *American Philosophies of Religion* (New York: Harper and Brothers, 1936), pp. 85–86 (Italics mine).

[9]*Ibid.*, Chapter VIII.

[10]*Ibid.*, p. 139.

[11]*Ibid.*, p. 143.

[12]*Ibid.*, p. 139.

We find three specific statements in his study which must serve as the bases of our analysis. In one place he writes, "God is at least an object of thought and perhaps an existing object."[13]

The second statement regarding God is an outgrowth of a polemic against positivism and humanism. After pointing out that positivists (after Comte) posit Humanity as the Supreme Being, and that positivists also posit the existence of other selves when their system logically demands solipsism, Brightman advances the argument to his own position. He writes:

> The personalist argues that if we can go beyond our immediate experience to the existence and experience of other selves, the same logic which grants us that right also grants us the right to define any other objects which are necessary to the explanation of the facts of experience. The very existence of consciousness and of value experience, especially of moral and religious experience, points to some traits of the rest of the universe which make their existence possible. A real, personal, creative, and active God is, the personalist believes, the only being which possesses traits adequate to explain these experiences.[14]

Critique:

1. With Mr. Brightman's first statement we do not take issue: That God is *at least* an object of thought is apparent; and that *perhaps* he is an existing object is allowable from the point of view of logical empiricism.

2. It is suggested that a subtle logical error is hidden in the above quote. Let us restate Professor Brightman's argument in this manner: The solipsist, in order to handle the "facts" of experience, posits the existence of other selves (objects); we personalists are going to follow this precedent and posit other "objects" which *we* consider necessary to explain the "facts" of experience. . . . We insist here that the word "object" as used by Professor Brightman is ambiguous and misleading. . . . When the solipsist posits other selves (*objects*) he *at least* is positing *empirical objects* capable of sensory verification. If placed on the semantic triangle, there is movement from Symbol to Referent. Now Professor Brightman, looking for an *object* capable of explaining certain aspects of experience, finds God. Our argument is that God-as-an-example-of-an-object *is not the same* as other-selves-as-an-example-of-an-object. As used by Professor Brightman, God-as-an-object is strictly definitional in the same sense as is "Unicorn", "Zeus", or "Paul Bunyan". Movement on the symbolic triangle is from Symbol to Reference only, never from Symbol to Referent.

It would seem to the writer that if one system of thought such as personalism demands the right to use logic as another system has used it, *then it is up to the ones making this demand to see that it is used in the same sense, and in the same way, with similar or comparable data. If it is not used in some such manner as this, it is not the same logic.* It is our contention that in his use of inferential *objects*, Professor Brightman has not used logic in the same sense as he asserts that the positivists have used it.

3. Professor Brightman makes another statement in the above quote about

[13] *Ibid.*, p. 141.

[14] *Ibid.*, pp. 142–143.

which we wish to comment: He writes, "The very existence of consciousness and of value experience . . . points to some traits of the rest of the universe which make their existence possible." From this he leaps to the existence of God as the necessary explanatory principle. Positivists, whom Professor Brightman calls "intellectually unfinished," would probably agree that the actual existence of a thing is proof *ipso facto* that such existence is possible. Positivists would not agree, however, that one advances understanding by positing unknowns to explain knowns.

It is of more than passing interest to note that modern positivism emerged as a protest movement against the hypostatizing tendencies of nineteenth century scientists—the very same type of thing that Professor Brightman is doing in the twentieth century. Many eighteenth and nineteenth century scientists, like Professor Brightman, thought that certain explanatory concepts had to be introduced to account for known empirical phenomena. *Before long these* (constructural) *explanatory concepts became genuine existents, things.*

The argument is advanced here that the use of unverified explanatory concepts, however necessary they may seem, is fraught with dangerous intellectual hazard. It is too easy to transmute the conjectural into the actual; the hypothetical into the categorical.

We insist that understanding will be best promoted if we avoid conjectural explanation; that if the present limits of reliable knowledge are to be expanded, it must be through further experience. This position is summarized most adequately by Bridgman:

> Concepts can be defined only in terms of actual experiment and are undefined and meaningless in regions as yet untouched by experiment. It follows that strictly speaking we cannot make statements at all about regions as yet untouched, and that when we do . . . we are making conventional extrapolations the looseness of which we must be fully conscious and the justification of which is the experiment of the future.[15]

The positivist would urge that we keep our inferences within our data. For example, what inference can one draw from the fact that the universe is congenial to the existence of reason? Only that the universe is congenial to the existence of reason. *That is the logic of the matter*, until other verifiable data is forthcoming!

4. We would summarize our critique of Professor Brightman's theology as follows:

1. His concept of God is purely definitional. His "God" has no denotative significance. Since his system is strictly non-empirical and conceptual, it admits of no truth claim.
2. If he uses the term "God" as an existent (object) in an informative way, he is operating within the fallacy of hypostatization.
3. Since propositions about abstractions must of necessity be logical constructions, then any propositions he makes concerning God are actually pseudo or meaningless propositions and hence incapable of informative use. Professor Brightman is by no means unaware of

[15]Bridgman, *loc. cit.*

this problem. Concerning the issue as to whether God is fact or fancy, he writes,

> Given a synoptic hypothesis, faith in the existence of God, for example, some means of testing it must be devised or else there is no way of knowing whether it points to fact or to fancy.[16]

Again, in discussing the problem of verification of religious propositions, he writes,

> Scientific propositions are based on experiments which are public operations, publicly verifiable. Religious propositions about God . . . are not similarly verifiable and arrive at no publicly compelling results. . . . It is at once evident that if verification means the appearance in consciousness of sense data predicted by the hypothesis under consideration, then verification of religious ideas is impossible.[17]

4. We would conclude our summary critique of Professor Brightman's position by citing his own statement that his system is and must remain non-informative: "If verification means the appearance in consciousness of sense data [of the religious object] . . . then verification of religious ideas is impossible."

John Dewey—As one moves from the rather obvious deductive systems of super-naturalism as found in Mullins or Barth through systems such as Brightman's to the more positivistically empirical systems such as found in E. S. Ames, H. N. Wieman, and John Dewey, he finds it increasingly difficult to establish adequate differentia between sensory-verifiable description and formal definition. Particularly does the writer find this true in analyzing Dewey's position. He is much less vulnerable to positivistic attack, yet one is convinced that inferential distinctions are present in his systems which remove it from an informative system and place it in an emotive or practical system—hence incapable of supporting truth claims. To an analysis of these distinctions we now turn.

Dewey's meaning of "God:" In the natural world, the world of sense, of everyday experience, certain known, actual conditions exist. We have daily experiences with these actual conditions, and as we react and respond to them we see that by affecting certain changes we can improve or produce more desirable or optimal actual-existents. To the already-existent, Dewey applies the word "actual;" to the possible-existent which men envision, he applies the word "ideal." But for Dewey, the actual and the ideal are not hopelessly bifurcated. A *modus operandi* is seen to exist by which the hiatus between the two may be narrowed or completely bridged. Now God is the active operations which enable men to actualize the ideal. Stated in this way it appears that Dewey conceives "God" as a verb rather than a noun.

It seems necessary for our analysis to attempt to reconstruct, as nearly as possible, the operational steps Dewey took in arriving at his meaning of "God." We propose this reconstruction by analyzing a specific (imaginary) illustration:

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[16]Edgar S. Brightman, *A Philosophy of Religion* (New York: Prentice-Hall, 1940), p. 119.

[17]*Ibid.*, p. 485.

Step One: 1) Competent research scientists have experimentally demonstrated (by quantitative methods) that the people of a given geographic area must have a certain minimal daily diet (expressed quantitatively) if they are to maintain normal (statistical) conditions of health and if they are to be able to work at normal (statistical) levels of efficency; 2) these people must subsist entirely from their own agricultural products; 3) but the soil is so depleted chemically that it cannot support the population at these quantitatively normal levels. Now as we interpret Dewey, the above conditions are what he means by "actual" existents. These are empirical facts.

Step Two: Dewey's ideal emerges when he implies that, "All men ought to have access to food supplies adequate to meet empirically established minimal daily requirements." Dewey expresses this thought as follows:

> . . . the ideal has its roots in natural condition, it emerges when the imagination idealizes existence by laying hold of the possibilities offered to thought and action. . . . The idealizing imagination seizes upon the most precious things found in the climacteric moments of experience and projects them. . . . They are had, they exist as good, and out of them we frame our ideal ends.[18]

Step Three: Agricultural scientists have learned experimentally that through the application of soil chemistry and by the introduction of tested methods of crop control, soil productivity can be increased sufficiently to produce enough food to meet average daily minimal requirements.

Step Four: The gap between the actual-existent and the ideal is narrowed or closed by the activities or operations of Step Three. As Dewey writes, "It is this active relation between ideal and actual to which I would give the name "God". I would not insist that the name must be given. . . ."[19]

Critique:

1) *Step One* (the description of dietary needs of a given people) deals with Dewey's *actual* existents. The propositions contained herein are amenable to quantification and to public verification. This meets logico-scientific tests established in Part I—genuine synthetic propositions that have informative content.

2) *Step Two* deals with Dewey's "ideal ends." These ideal ends seem to carry for Dewey the weight of a "categorical imperative"—of oughtness. Ideal ends are always value judgments. Value judgments are private. They carry no empirical or descriptive coerciveness. This lack of empirical content reduces the proposition, "All men ought to have a daily minimal diet," to a non-informative status. However meaningful it may be emotionally or practically, the proposition must be classed as "pseudo" informatively.

3) *Step Three*, which deals with scientific know-how, by which we move from actual-existents to the ideal, meets our logico-scientific tests.

4) *Step Four*, the actual application of scientific know-how to our problem,

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[18]John Dewey, *A Common Faith* (New Haven: Yale University Press, 1934), p. 48.

[19]*Ibid.*, p. 51.

gives Dewey's meaning for "God." "God" is the active relation or operation by which we move from the actual to the ideal.

This definition of "God" satisfies the linguistic stipulation that proper names must have denotative meaning. Dewey's God has a publicly verifiable, empirical content. In our illustration we can describe the operational procedures by which diet is raised from sub-minimal to minimal levels.

By linguistic stipulation, if Dewey wants to call these operations "God" he is logically justified in doing so, since naming and defining are arbitrary prerogatives of a writer or speaker. However, since his concept "God" is so different from familiar meanings, he does seem indifferent to the semantic stipulation that meanings generally should be kept as close as possible to familiar usages.

Dewey's system has extensive empirical and informative content. However, if he demands oughtness in the realization of ideal ends, his system ceases to be informative and becomes hortatory and emotive. His use of "God" as the symbol to denote the operations which lessen the hiatus between the existent and the ideal is quite unfortunate. In this particular instance, he himself seems guilty of doing what he condemns in others—he criticizes the mystic for confusing the mystic experience with theories about it. He writes that theories about the mystical experience are not abstracted from the experience but imposed upon it from conceptions formed outside the experience itself. One feels that Dewey has done the same type of thing when he imposes the word "God" upon the active relation between the ideal and the actual.

SOME OBSERVATIONS AND CONCLUSIONS

Logic and science are both essentially deliberate attempts to establish methods which will yield a type of knowledge in which the informed mind can have a measure of confidence. Neither traditional logic nor inductive logic, formalized in scientific method, is congenial to a type of knowledge predicated on unwarranted inference and/or on over-generalization. Both must reject claims to knowledge which arise out of sheer guess work or speculation, regardless of the emotional genuineness of its motivation; and both must reject claims to knowledge predicated on esoteric relation with unseen powers which defy verification.

The essence of responsible knowledge is *verification*. And verification, if it is to have intelligibility, must be public—available to any disinterested observer who will take the trouble to pursue the means of confirmation or negation. From this point of view, the knowledge enterprise is seen as a *methodologically uniform* enterprise. That is, the method best calculated to yield responsible knowledge in one area is, with modifications allowable to account for variables, the method most likely to yield responsible knowledge in *any* area. Literary-historical devices employed to verify past events in secular history are most likely to yield the most reliable type of knowledge when applied to religious history. In the same way if, what we want in the religious area is reliable knowledge, then the best way to get it is to employ the sharpest and most highly refined intellectual tools at our disposal. Logico-scientific devices constitute these highly refined methods. . . .

It may be that the residue will be pitifully small once such controls are used

to attack religious phenomena;[20] but is a genuine quest for reliable knowledge predicated on large remainders as the product of our inquiry. Rather complete historical negation than a form of knowledge predicated on non-verified assumptions!

One suspects that recent urgent demands for religion in public education stem out of highly specialized definitions of religion—or more accurately specialized aspects of Christianity.

However, the public school, unless it willfully puts intellectual blinders about the eyes and minds of its students, must be inclusive in its selection of subject matter. A critique such as offered in this study has just as legitimate a place in the classroom of the public school as does the disguised dogmas of Luther, Augustine, or Acquinas. In fact, one could argue with considerable historical and logical force that the New Testament itself is a document with variable incompatible systems of dogma and interpretation.[21]

It has been assumed—naively so the writer believes—that an inclusion of "religion" (Christianity) in the curriculum of the public school, would somehow automatically supply a stable moral fibre to students. . . . It is suggested here that the application of scholarly methods to the dogmas of Christianity will yield as many "unbelievers" and agnostics as it will accepting saints.

And it is further argued here that formulators of educational policy have a moral commitment which can be expressed in the form of "intellectual integrity." This means that in simple fairness we are committed to present all sides of an issue rather than highly colored sides. If those who want "religion" in public education will underwrite an objective presentation of concepts *clear across the board*, (including such types as this), then perhaps religion in public education would be a good thing—perhaps it would help push our culture more completely into the positivistic stage of Comte.

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[20]E. W. Parsons indicates how logico-scientific method pares off materials that were once accepted as indubitable history. Concerning the historicity of the documents relating to the life of Jesus (E. W. Parsons, *The Religion of the New Testamant* (New York: Harper and Brothers, 1939), p. 6.), he wrote:

"The sources of our information concerning his [Jesus'] religion did not come immediately from him. . . . Synoptic study has proved that these documents are not independent witnesses but are marked by interdependence. . . .

"Careful examination . . . of the Gospels show that they have passed through the double alembic of oral transmission and of practical interest. . . . One must never forget that the New Testament . . . is the product of an enthusiastic, vital religious *movement*, which left the stamp of its developing life upon its literary products."

[21]A further study which supports the position of Parsons (see footnote 20), and which indicates multiple and incompatible religious interpretations in the New Testament is: S. J. Case, *Jesus, a New Biography* (Chicago: The University of Chicago Press, 1927).

WHEN IS SCIENCE?[1]

BY HARRY A. GRACE

"WHY DO PSYCHOLOGISTS SPEND THE FIRST SESSIONS OF EVERY COURSE TRYING TO CONVINCE THE CLASS THAT PSYCHOLOGY IS A SCIENCE?"

Undergraduates majoring in the bio-physical sciences often ask questions like this. Heard often enough and answered indifferently, these questions begin to prey upon a teacher. In order to answer them for myself and my students, I began to examine psychological science. As I thought about psychology, paradoxes paraded before my mind. Let me present a few of the paradoxes which confound psychology, after which I shall offer a definition of science which reduces paradox and places psychology within the community of science.

"The spirit of science is one of loyalty to a Community of Interpretation. . . . The individual has made his discovery; but it is a scientific discovery only in case it can become, through further confirmation, the property and the experience of the community of scientific observers . . . this confirmation always involves a typical instance, or a series of instances, of Peirce's cognitive process called interprepation. . . . The final truth of each idea . . . that enters into this community, is due (when the goal is reached) neither to its 'works' nor to its workings, but to its essential spiritual unity in and with the community. . . . That the scientific community itself exists, is therefore one of the most important principles used in the natural sciences. Often this principle is more or less subconscious. It is seldom adequately analyzed . . . Whoever says, 'I have discovered a physical fact,' is not merely reporting the workings of his own individual ideas. He is interpreting. He is therefore appealing to a community of interpretation. . . . All scientific research depends upon loyalty to the cause of the scientific community of interpretation."[2]

One rat, recently returned to his cage, runs to a fellow rat and exclaims, "You know, I've got Dr. Zilch conditioned!"

"How so?" asks the second rat.

"Well," replies the first, "everytime I press the bar, he gives me food!"

When one watches the conditioner slave over his experiment, the question arises as to who conditions whom. Of course, anomalies exist in other fields of psychology. Large sums of money are spent to find that ear plugs reduce noise. Studies indicate that first impressions are more valid for predictive purposes than subsequent information. Anxiety appears to be related to eyelid conditioning, at least for those queer persons who willingly allow air to be puffed into their eyes.

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[1]"If we would have new knowledge, we must get us a whole world of new questions." Langer, S. K., *Philosophy in a New Key* (New York: Penguin, 1948), p. 10.

[2]Royce, J., *The Problem of Christianity*, Vol. II (New York: Macmillan, 1913), pp. 227–228, 231, 235, 245, 247, 249, 252.

Critical thinking is related to one's having taken courses in logic, but persons who take such courses have higher IQ's to begin with. Psychotherapy changes people, we believe, although experiments on therapy ignore control groups. There is more aggression in democracy than autocracy, at least inside the laboratory. Analysis reveals three factors in behavior—the evaluative, the cognitive, and the active. But Wundt deduced the same triumvirate—feeling, thinking, doing—when psychology was a pup. Who has validated whom?

Paradoxes weaken a science which cannot integrate them. At present, paradoxes weaken psychology. ". . . The object is not to do away with *difference* but to do away with *muddle*. . . . The object of accurate information is not to overcome difference but to give legitimate play to difference. . . . There is now some basis for significant difference. Difference based on inaccuracy is meaningless. We have not done away with difference, but we have provided the possibility for fruitful difference."[3] Professionalism threatens to replace the chaos of paradox with the certainty of codes, anarchy with orthodoxy, and orthodoxy stifles science worse than anarchy itself.

Ernst Mach had this to say about his science. ". . . The physicists are on the surest road to becoming a church, and are already appropriating all the customary means to this end. To this I simply answer . . . I hereby abandon the physicist manner of thought, I will be no regular physicist. I will renounce all scientific recognition; in short the communion of the faithful I will decline with best thanks. For dearer to me is freedom of thought."[4]

With slight revision this quotation might find favor with some psychologists today. Codes have already made their way into psychology.[5] Therefore, there is good reason to redefine psychological science before it becomes a church.

When Is an Investigation Scientific?

An investigation is scientific when the method it employs is appropriate to the problem it seeks to solve. This principle delimits the community of scientists.[6]

The investigator, to be called a scientist, may choose either his problem or his method—not both. Having chosen his problem, it is his responsibility as a scientist to choose the method most appropriate to the problem's solution. On the other hand, he may prefer a method. To be responsible to the scientific community, he must employ that method toward the solution of appropriate problems. Both the freedom of selection and the responsibility of appropriate

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[3]Follett, M. P., *Creative Experience* (New York: Longmans, Green & Co., 1924), p. 6.

[4]Carus, P., "Mach and His Work", *Monist*, 1911, *21*, pp. 19–42.

[5]Committee on Ethical Standards for Psychology, *Ethical Standards for Psychology* (Washington, D.C.: American Psychological Association, 1953).

[6]Traditionally, psychology has used a bio-evolutionary classification. Psychology has been imperialistic within this taxonomy. Psychologists have become interested in infrahuman animals as well as suprahuman organizations. Recently, psychology has added the machine (infra- or suprahuman?) to its area of concern. The distinction between living and non-living phenomena has doubtful usefulness in psychological science. Some of our paradoxes may be traced to this archaic taxonomy which either lumps all life together or categorizes life more distinctly than behavior warrants.

coordination of problem and method are conditions for membership in the community of science.

Questions are not meaningless, per se.[7] They only become meaningless when they do not fit the dimensions of a method. All questions cannot be answered by the same technique, whether it be a T maze, an ink blot, F scale, a tachistoscope, or a poem. To attempt to investigate all questions by the same method *makes the question meaningless for the method.*

The dogmatic misuse of positivism and operationalism by some psychologists has tended to reduce the science. The operationalist so thoroughly enjoys the clean experiment, the cute design, that he has long since forsaken science for sanitation. He jeers at Herbart for having said that psychology would never become a laboratory science. But Herbart's statement still stands. The operationalist has defined psychology in such a manner that Herbart's interests are excluded from the laboratory. Operationalism, by its parochial emphasis upon immediacy, its rejection of continuity and reason, supports an orthodoxy which threatens psychological science. Bridgman recognizes this trend when he comments, "It has, in fact, been a surprise to me that, since the publication of my book, so much of the concern of others has been with abstract methodological questions suggested by the endeavor to erect some sort of philosophical system rather than with attempts to follow the more concrete and obvious leads . . . . An operational analysis is always possible, that is, an analysis into what was done or what happened. An operational analysis can be given of the most obscurely metaphysical definition . . ."[8]

Methods are not meaningless, per se. Methods become meaningless insofar as they are inappropriate to the dimensions of the problem they are supposed to solve.[9] Before indicating a taxonomy of methods, I wish to emphasize how this principle reconstructs a community among psychologists and between psychology and other sciences. "The problem raised by philosophical diversity is essentially the same as that produced by specialization. It is the problem of forming a community in the absence of communication."[10]

THE STRATEGY OF INVESTIGATION

The investigator enters his study with a strategy. For limited (minutely extensive) and immediate (fleetingly temporal) problems, one method may be more valid than another. "If a result is to be used merely to confirm a result of an independent investigation, it may have a high value even though its probability is not very high. But if it is only to be used in combination with other

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[7]Bridgman, P. W., *The Logic of Modern Physics* (New York: Macmillan, 1946), pp. 28–31.

[8]Bridgman, P. W., "Remarks on the Present State of Operationalism", *Scientific Monthly*, 1954, *79*, pp. 224–226.

[9]The concepts of time and space, or power and reason, provide pragmatic coordinates for the classification of psychological events. We select an event, assessing the amount of space it occupies and the power it exemplifies. These are extensive aspects of the event. We assess the intensive aspects of the event by the time over which it endures and the continuity, sequence, or reasonableness it portrays. Having made these judgments of extension and intension, (always colored by our initial selection of the event itself), we may classify an event accordingly. Methods may also be classified according to the scope of their extension and intension as this paper will indicate.

[10]Hutchins, R. M., *The University of Utopia* (Chicago: University of Chicago Press, 1953), p. 49.

results, very little will be gained by increasing its probability far beyond the probabilities of those others. . . . But where a high degree of exactitude and probability is unattainable, that is no reason for refusing to accept such knowledge as we can attain."[11] By valid, I mean appropriate to the dimensions of the problem. Thus, for immediate, reversible, finite decisions about a person, the Rorschach has validity.[12] So do palm reading, the crystal ball, first impressions, and a host of other techniques. But if men's lives depend upon the assessment of their personalities (the implication being that once we decide we may never change our mind), no battery of tests would be too large to facilitate this decision. No ink blot or crystal ball would alone be valid. Instead, we would demand an answer be repeated (time) under many different circumstances (space) because the decision of life or death is infinitely extensive and intensive.

From the design of a study we can predict what events the investigator will call data. For example, aggression may be higher in democratic than autocratic atmospheres. However, extend the space of investigation to include the hall outside the laboratory. Then greater aggression is expressed in autocratic rather than democratic atmospheres. Autocracy accomplishes more work in a given session than democracy. Extend the time to include session after session and efficiency decreases in autocracy while it increases in democracy. The criterion of learning is reached with twenty correct consecutive discrete trials. But the student asks, "Might not the subject choose incorrectly if he were run on the twenty-first trial?" This is not naivete. "We must always be prepared some day to find that an increase in experimental accuracy may show that the two different sets of operations which give the same results in the more ordinary part of the domain of experience, lead to measurably different results in the more unfamiliar parts of the domain. We must remain aware of these joints in our conceptual structure if we hope to render unnecessary the services of the unborn Einsteins."[13] The question about the twenty-first trial indicates that changes in the extension or intension of an event (a) imply different strategies of investigation, (b) supply different data, and (c) comply with different theories.

The investigative procedure flows something like this. Uneasiness irks the psychologist. Reflecting upon it, he selects a particular aspect to investigate. As he forms an hypothesis, he becomes aware of its appropriateness to the source of his uneasiness. To test the hypothesis, he selects a stimulus. He selects subjects. From the interplay among himself as investigator, the stimulus he has selected, and the subjects he has chosen the data are derived. Upon what do the data depend? The method of investigation, the stimulus, and the subjects. But each of these has been selected by the investigator. Thus, he actually determines his data, too.[14] Data are not indeterminate, they are determined by the

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[11]Hartshorne, C. and Weiss, P., *The Collected Papers of Charles Sanders Peirce*, Vol I (Cambridge: Harvard University Press, 1931), 1: 86.

[12]Cronbach, L. J., "Report on a Psychometric Mission to Clinicia," *Psychometrika*, 1954, *19*, pp. 263–270.

[13]Bridgman, P. W., *The Logic of Modern Physics*, *op. cit.*, p. 24.

[14]Logicians, mathematicians, and related linguists improve the appropriateness to reality of problem selection and hypothesis formulation. Likewise, it is their special concern to improve the correspondence between inference and the results of investigation.

investigator. That is why we must have a community of investigators, that we may share and criticize one another's selections. Science is such a community.

We can assess the scientific competence of a psychologist by the correspondence of his method, logic and technique, to the problem he wishes to solve. Borderline investigations are no shame. "The man who is working in the right way to learn something not already known is recognized by all men of science as one of themselves, no matter how little he is informed. . . . So if a man pursues a futile method through neglect to inform himself of effective methods, he is no scientific man; he has not been moved by an intelligently sincere and effective desire to learn. But if a man simply fails to inform himself of previous work which would have facilitated his own, although he is to blame, it would be too harsh to say that he has violated the essential principles of science. If a man pursues a method which, though very bad, is the best that the state of intellectual development of his time, or the state of the particular science he pursues, would enable a man to take . . . we perhaps cannot call them scientific men, while perhaps we ought to do so. Opinions would differ about this. They are, at any rate, entitled to an honorable place in the vestibule of science. A pretty wild play of the imagination is, it cannot be doubted, an inevitable and probably even a useful prelude to science proper. For my part, if these men really had an effective rage to learn the very truth, and did what they did as the best way they knew, or could know, to find it out, I could not bring myself to deny them the title."[15]

Studies which fall between methods are admittedly less scientific. As logic and technology evolve, that which was borderline to the science becomes central. Psychophysics, its very name implies, lay on the border. Later it became central to psychology. Today, psychophysics might be called borderline physiology, because psychologists often exclude this topic, along with human heredity and development, from their definitions of the science. And the psychophysicists docilely accept the title "physiologist" in preference to the professional tinge which surrounds "psychologist."

Failing to define a community of psychological scientists, allowing professionalism the day, psychology stands to lose its vital organs—psychophysics, comparative and physiological psychology, human heredity and development—as it has long since lost its mind and soul.[16]

A TAXONOMY OF INVESTIGATIVE TECHNIQUES

"It comes to this, that sciences must be classified according to the peculiar means of observation they employ. So too, the great landmarks in the history of science are to be placed at the points where new instruments, or other means of observation, are introduced. On the other hand, if classifications are to be restricted to sciences actually existing at the time the classifications are made, the classifications certainly ought to differ from age to age. If Plato's classification was satisfactory in his day, it cannot be good today; and if it be good now, the inference will be that it was bad when he proposed it."[17]

[15]Peirce, *op. cit.*, 1: 235.

[16]The classification of psychological events along an evolutionary continuum from infrahuman to human to suprahuman, mitigates toward emphasizing suprahuman psychology. Psychologists whose concern is farther down the scale soon fade away.

[17]Peirce, *op. cit.*, 1: 101–102, 1: 203.

Taking a cue from Peirce, we may define psychological science by classifying the techniques psychologists use in their investigations. Classifying events by their extension and intension wastes neither the current emphases upon psychological paractice nor the traditional emphasis upon principles of behavior.

The graphic representation of infinity has heuristic value for my argument. Graphically, infinity runs in two directions, from the infinitely small to the infinitely large. Thus, no less a scientist than Albert Einstein, although he commented on the state of culture shortly before his death by suggesting that he might prefer the profession of plumbing, sought answers to the riddle of the universe (infinitely large) in the nucleus of the atom (infinitely small). The same graph loses its value if it leads us to believe there are two infinities. No matter how we graph it, infinity is one. Is it any wonder then that the creativity of the artist and the laboratory experimenter appear so similar? After all, both deal with infinity. The artist's world is macrocosmic, infinitely large, and the laboratory experimenter's microcosmic, infinitely small. Nonetheless, creative investigators find mutual concern in cosmic problems.

This brief discussion of infinity and the relations between creative artists and experimenters suggests the point of the taxonomy proposed in this paper. I should like to classify the techniques of investigation used in psychological science into three classes: discovery, uncovery, and recovery. Then, assessing the extension and intension of each technique, I should like to arrange them in order from most extensive and intensive (macrocosmic) to least extensive and intensive (microcosmic). When this task is accomplished, the science of psychology should be clear, and the place of psychology among other sciences better understood.

Discovery. The techniques of discovery enable the investigator to control his research quite thoroughly. These techniques afford conclusions of great general value but little immediate importance. They permit the investigator to manipulate his subjects. Thus, he may create situations which do not presumably exist in nature and discover what did or might exist. Two subclasses are important: reflection, as in fiction or in theory; and experiment, as in the laboratory or in the field.

The investigator who uses fiction need obey few rules to gain an understanding of the problem. He may create a unique situation and follow it to its conclusion. The language of the arts and literature lie at his disposal, and even they may be manipulated at whim.[18]

Rules of logic predominate in theoretical reflection. The investigator may write a new logic, but he must be consistent with his premises throughout. Mathematics is the primary language for theorization.

The laboratory experimenter conducts his study in a special environment. He manipulates his stimuli, his subjects, and their situation to suit the problem under investigation.

In the field experiment, the investigator may manipulate some of the variables, but only within the confines of the on-going situation.

Uncovery. The class of techniques known as uncovery allows the investigator to question his subjects. He may inquire about past events, present

[18]Oehser, P. H., "The Lion and the Lamb", *American Scientist*, 1955, *43*, pp. 89–96.

behavior, or future plans. His controls lie more in the statistical analysis of his results than in his ability to manipulate the environment. Three techniques are important in this category: the poll, the test or survey, and the depth interview.

The poll gathers brief answers about a few issues from a wide sample of people.

The survey explores how a particular group of people reacts to different aspects of one topic.

The depth interview gathers a great amount of related data from a few informants.

Recovery. Techniques of recovery provide insight into behavior in spite of the investigator's inability to manipulate or question the subjects directly. The investigator attempts to reconstruct the pattern of action. His observations may be contemporaneous or historical. *Product analysis* focuses upon either the signs or symbols subjects emit. *Process analysis* focuses upon the continuity of behavior.

Sign analysis does not manipulate the environment but may take place during or after the action. The investigator must be skilled in observing, recording, and treating data in order to provide adequate controls.

Languages provide the data for *symbol analysis.* Music, art, dance, sport, or words are some of the forms analyzed. The investigator need not be present when the forms are issued. His controls lie in the choice of his sample and the analysis of his results.

Biography is a technique of process analysis. Whether the study selects a brief episode in a subject's life or the entire life itself, biography focuses upon the sequence of events. The data are not isolated incidents but the continuity which binds events together.

History, a second technique of process analysis, concentrates upon assemblies of subjects. It seeks to recover events which occurred simultaneously or sequentially. The investigator may select his limits but he has little choice of his subjects and no ability to manipulate them.

SQUARING THE CIRCLE

Having presented these eleven techniques and classified them as either discovery, uncovery, or recovery, I will now assess the limits of extension and intention each technique implies.[19] Ranking each technique according to its extension and intension, I arrive at the graph in Figure 1. I cannot argue the finality of my assessment of these techniques. I only wish to delimit a community of science in which psychology finds a proper place, using as the definition of science the appropriateness of a method to a problem.

The story is told of a pint-sized convict who had been trying to split a boulder with a tack hammer. Before quitting time, his giant buddy obligingly pulverized the boulder with one blow from his sledge hammer. The shorter convict looked up at his smiling confederate and quipped, "Do you think you could've split that rock if I hadn't softened it up for you?"

[19]By extension I refer to the space (number of stimuli, number of subjects) and power (ease of subject stimulation and manipulation, importance of subjects) each technique allows. The intension of the technique includes its time-sample or duration and the sequence, continuity, or reasonableness it permits.

It is questionable that the problem of international war and peace can be solved, even softened up, by T mazes, attitude surveys, ink blots, etc. All the investigator gets from such techniques is a "whee-feeling". And that false sense of accomplishment is of doubtful value to science. Nor will poems, however well written, replace the dark room and the filter in the study of light adaptation. Poems may even get in the way of answering such psychophysical problems. For microcosmic questions there is no substitute for the "wee-feeling" which arises from employing microscopic techniques.

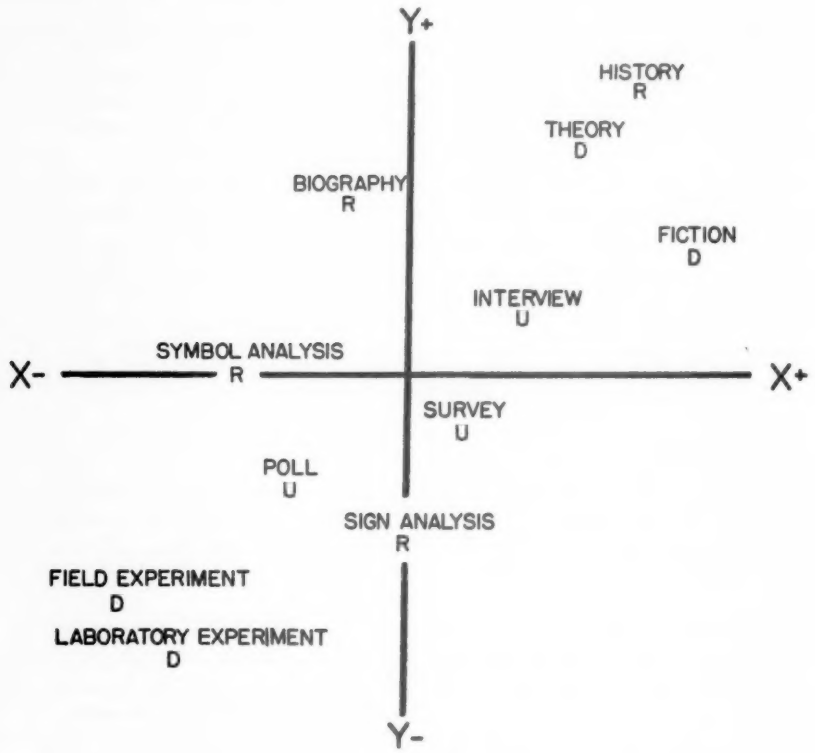

FIGURE 1

Techniques of investigation plotted according to their extension (X), space-power, and intension (Y), time-reason. Each technique is classified as discovery (D), uncovery (U), or recovery (R).

The community of science embraces all methods. It expects some misapplications as methods are tried on for size. Nor is the community threatened by the diversity of problems. It is rather comforting to know that other scientists are at work on polio, atoms, vision, and so forth, that I might concentrate on problems of my own choosing. We respect as fellow scientists men who select different methods for their problems, and we expect to receive their respect in

return. "In the beginning of this century, chemotherapeutic research produced results that only a few years earlier, would have been regarded as impossible. Personally, I am convinced that coming studies in the field of *social psychology* will enable us to understand the nature of mental diseases and of many nervous disorders. If I were sixty years younger I should not hesitate to devote myself to the study of social psychology or psychiatry."[20] We would welcome Dr. Von Euler-Chelpin today, for Prof. L. F. Richardson, retiring from physics a few years ago, has already made significant contributions to the social psychology of war and peace. If knowledge is unified, what right have we to believe that a specialist is one aspect of science might not contribute to another? Science is a community of difference, not of deference. Difference in problems and methods is the basis for confidence among scientists.

Historically, a science flows back and forth from fiction to laboratory experiment and return. Any single investigation runs a similar gamut. Rather than a straight line from discovery through recovery, these techniques find better representation as a circle.

WHEN AN INVESTIGATOR IS SCIENTIFIC

Daily, we drive mature scientists out of psychology. Daily, we discourage the immature from pursuing a career in psychological science. When a person employs the appropriate method to the solution of his problem, welcome him into the community of investigators called science! He enters as a peer. Rank, status, and privilege are professional bogies with no place in the free community of scientists. As a member of the scientific community, expect him to make public his efforts and try again. He is free to select any problem. He is free to use any method. It is his responsibility as a scientist to coordinate the problem and the method, for in so doing he advances knowledge and expands the community of science.

Psychologists belong to this community of scientists. "A few years ago, indeed, regenerate psychology, in the flush of her first success, not very wisely proposed to do without metaphysics; but I think that today pscyhologists generally perceive the impossibility of such a thing. . . . Soon we may hope that all psychologists, on their side, may be equally at one that all phenomena without exception are purely psychical for the purposes of psychics."[21] Like the common law, itself an institution of a free and responsible society, science requires housecleaning to bring it up to date. With each new-found integrity the goodness of fit between methods and problems is improved. However, the common law rests with peers. Hierarchies introduce dogma. The common law integrates differences without regard for deference. Differences among the community of scientists strengthen psychology, strengthen science, and strengthen society. This definition of science, placing psychology in its proper setting, dispells anarchy, and with anarchy it dispels the symptoms of professional duplicity and the threat of orthodoxy which prevail.

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[20]Von Euler-Chelpin, H., "Place of Science in Society Today", *Scientific Monthly*, 1954, *79*, pp. 365–367.

[21]Peirce, *op. cit.*, 1: 250, 1: 252.

A THEORY OF DISCIPLINE DERIVED FROM DEWEY'S THEORY OF INQUIRY

BY DOROTHY JUNE NEWBURY

A SEARCH FOR A THEORY OF DISCIPLINE IN DEWEY'S THEORY OF GROWTH leads one to think of discipline as synonymous with inquiry. The theory of inquiry, then, should give us insights into classroom discipline problems. To spell out such a theory of discipline from *Logic: the Theory of Inquiry*[1] is our present purpose.

> The remedy for the evils attending the doctrine of formal discipline previously spoken of, is not to be found by substituting a doctrine of specialized disciplines, but by reforming the notion of mind and its training.[2]

Dewey rejects the old conception of mind as independent, isolated, "spiritual."

> Too frequently mind is set over the world of things and facts to be known; it is regarded as something existing in isolation, with mental states and operations that exist independently. Knowledge is then regarded as an external application of purely mental existences to the things to be known, or else as a result of the impressions which this outside subject-matter makes on mind, or as a combination of the two. Subject-matter is then regarded as something complete in itself; it is just something to be learned or known, either by the voluntary application of mind to it or through the impressions it makes on mind.[3]

These conceptions, says Dewey, "are mythical."

Mind is not something complete in itself. "It is a name for a course of action intelligently directed."[4] "Conceive mind as anything but one factor partaking along with others in production of consequences and it becomes meaningless."[5]

These points in regard to the nature of mind Dewey says are demonstrated by the "facts of interest."[6] In our first article we pushed interest further and showed it to be a condition of discipline.

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**Professor Newbury's "A Search for the Meaning of Discipline in Dewey's Theory of Growth," a preliminary to the present essay, appeared in the October, 1956 issue of Educational Theory.*

[1] John Dewey, *Logic: The Theory of Inquiry* (New York: Henry Holt and Co., 1938).

[2] John Dewey, *Democracy and Education* (New York: Macmillan Co., 1920), p. 155.

[3] *Ibid.*, p. 153.

[4] *Ibid.*, p. 155.

[5] *Ibid.*

[6] *Ibid.*, p. 153.

If "mind is a course of action intelligently directed," thinking is the process by which it is carried out. We have already defined discipline as the same thing. "Thinking *is* the method of intelligent learning, or learning that employs and rewards mind. We speak, legitimately enough, about the method of thinking, but the important thing to bear in mind about method is that thinking is method, the method of intelligent experience in the course which it takes."[7] Our investigation now brings us to the conclusion that discipline is thinking. What promotes thought, therefore promotes also discipline. For this, we have seen, the theory of interest is not enough. Discipline in the classroom requires purposive activity. A warranted conclusion at this point might seem to be that this must be provided by the teacher through carefully structured problems. Only in this way can mind be "a name for a course of action intelligently directed." In this way, discipline can be held synonymous with thinking. A disciplining situation, therefore, features the careful structuring of the teacher.

It does not take long to state Dewey's view of what mind is. It takes much longer to indicate the evils in educational practice which have resulted from the traditional concept of mind as a mental state isolated from subject matter. It derives, of course, from a philosophical dualism, of which Dewey says: "It would be impossible to state adequately the evil results which have flowed from this dualism of mind and body, much less to exaggerate them."[8]

Most of the discipline problems in schools spring from the artificial separation of mental from bodily activity. Perhaps chief among these problems are those which derive from a mistaken view of subjectmatter as separate from and alien to the learner, a view which is a corollary to the concept of mind as an isolate. This problem is now in order for consideration.

Discipline and Subjectmatter

A corollary to mind as an isolate is the isolation of subjectmatter into alien material that has to be "mastered" by some spiritual process of suffering and exercise of "will." The traditional concept of discipline as a forcing of the unwilling abides naturally with this traditional concept of mind. If mind and body are separate and antagonistic, as are also mind and subjectmatter, then clearly discipline is the forcing of the spiritual powers of mind upon the unwilling body and subjectmatter. This whole picture Dewey describes as myth.

The importance of subjectmatter in discipline is not in question. What is in question is its relation to the learner. This relationship is one of mutual dependence. Subjectmatter cannot exist without a learner. For subjectmatter provides the data of a problem. With all the existential materials in the world, there is no problem, hence no subjectmatter, until the learner (inquirer) enters the picture. Clearly discipline cannot rest solely upon subjectmatter, inasmuch as subjectmatter does not exist alone.

Subjectmatter "consists of facts observed, read, talked about, and the ideas suggested in the course of a development of a situation having a purpose."[9]

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[7] *Ibid.*, p. 165.
[8] *Ibid.*, p. 180.
[9] *Ibid.*, p. 212.

This means, of course, that subjectmatter for the learner is not the finished stuff of the adult. Failure to realize this accounts for the wide misuse of texts. The subjectmatter of texts is usually the finished, the rationalized knowledge of experts.

This leads us to ask, what is knowledge, in the sense that it constitutes subjectmatter? Dewey's naturalistic logic points out three stages of knowledge. The first stage is the power to do, the ability to manipulate things in accordance with purpose. Following this is a higher stage in which one is able to communicate a report of what he is doing to others and to surcharge his power to do with information assimilated from parents, teachers, and books. The third and final stage of knowledge is that of logically organized material. This is the stage of science.[10]

Much traditional discussion of knowledge in education recognizes the final stages only. Knowledge consists solely of communicated information or scientifically formulated truths. It is cut off from its basis in the lower, manipulative stage. Without this basis it can only become a set of truths learned through memorization. The method of acquiring this knowledge, then, is formal discipline. The subjectmatter is thought to be disciplining in the sense that it compels the unwilling.

Since this subjectmatter is removed from the learner and his needs, it cannot function to sustain the learner's interest and attention over the period of time necessary for the solution of a problem. Because it does not so function, teachers following this theory exhort students to use their "will power". Also they resort to rewards and punishments.

With Dewey, interest and attention are sustained through the period of time necessary for problem-solving, because the three stages natural in the formation of knowledge are appropriately recognized. But this does not mean that discipline is located in subjectmatter alone. For as we have seen the subjectmatter itself exists only in a problem situation which features a learner motivated by interest and purpose.

Progressive educators whose theory of discipline consists in the formula: "give the child something to do which interests him," may well be begging the question. Unless their theory is further developed, they are placing discipline in the same locus as traditional teachers—in subjectmatter. Their discipline, like their subjectmatter, may be less formal. But it is still supposed to do a trick. Somehow or other, learning is supposed to be the result of exposure and application to subjectmatter. With the impetus that characterizes the swing of a pendulum from one extreme to another, traditional teachers emphasize a discipline of "mind" in the traditional, separate-from-the-body sense, while progressives emphasize a discipline of activity. When reviewed in relation to subjectmatter, the positions of traditional and progressive teachers exhibit elements strongly similar, if not identical.

Perhaps, then, it may be possible to reconcile such antithetical theories and practices as those of the traditional and the progressive teacher. Why not take from the traditionalists their emphasis on teacher guidance of subjectmatter and

[10] *Ibid.*, p. 216.

from the progressives their insistence on subjectmatter meaningful to the learner? Can something of this sort be done without merely eclectic combination? If so, it will require a new plan of educational operations. And this will in turn be derived from a new order of conceptions, proceeding from a level deeper and more inclusive than the level of present struggles.

If the hand of the teacher can be strengthened by structuring learning situations, guidance for the process may reasonably be expected from the pattern of inquiry, the process by which knowledge is made. Indeed, the foregoing discussion of the nature of knowledge and of subjectmatter required terms which find their fuller meaning in the theory of inquiry. This is true to such a degree that one cannot get an accurate understanding of the nature of these terms without examining the theory of inquiry.

The Relevance of the Theory of Inquiry to Discipline

No force has been more important in transforming theories of knowing and the known, than the development of the experimental method as the most successful practice for making knowledge and for making sure that it is knowledge. The preeminence which it has won justifies basing theory of knowledge upon it and trying to extend it to new fields in the hope of improving them.[11]

Among the "new fields" to be improved by application of the scientific method is the field of values, moral or social. As the experimental method produced a new material world, so it will also eventually produce a new mind. This sentence is put in non-transactional terms. It is better put in these terms: thinking man, as he transforms his world, becomes increasingly conscious of his method and applies it to all phases of his activity, including the formation of values.

Education, ruled by value judgments, is a part of this field. Especially is the problem of discipline a part of it. In order to know how one ought to conduct classrooms and inquiries for the facilitating of learning, one has to make many value judgments. In saying that the guide for these judgments is found in the practice that best makes knowledge, one is saying that this guide is in the process of inquiry. When this inquiry is, by definition, the experimental (or scientific) method, one is saying that value judgments fall within the field of the experimental method.

So, in turning to inquiry for a pattern for discipline, one is saying that the way to go about teaching people to solve problems (or make knowledge) is to copy the way knowledge is made. If this be true, discipline rests in inquiry.

Dewey has said that one of the chief issues in philosophy which concerned him and controlled his thinking was that of the relationship of value judgments to scientific knowledge.[12] This issue controls the present study, as attention is directed to the theory of inquiry.

This is sufficient reason for examining inquiry in its relation to discipline. But there is yet another reason:

An analysis of the theory of inquiry facilitates the use of *transactional terms*.

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[11] *Ibid.*, pp. 393–95.

[12] *The Philosophy of John Dewey*, ed. by Paul Arthur Schlipp (N. Y.: Tudor Publishing Co., 1951), p. 523 and pp. 578–79.

This is true because the theory of inquiry is unhampered by dualisms, by archaic views of mind, or by aims, goals, or purposes imposed from without by authority.

Philosophy in its broadest sense, says Dewey, is the general theory of education. This implies that philosophy is rooted in practical problems. So it can be expected that philosophy and discipline will illuminate each other. It is therefore appropriate to look at the general theory of inquiry in order to understand a particular practical problem like discipline, just as it would be equally and more obviously appropriate to look at the process of solving such a particular practical problem in order to understand the theory of inquiry. The latter is what Dewey does in his work on logic. The former is what this study now undertakes.

PRE-INQUIRY VERSUS POST-INQUIRY SITUATIONS

Inquiry is a process. In a naturalistic logic, it is continuous with previous processes which are not inquiry. In keeping with the principle of continuity, it ends in a state of affairs which is recognizable as a result of its process. If these states of affairs are considered as Pre-Inquiry and Post-Inquiry, a way is found into an analysis of the process of inquiry itself.

The starting point in inquiry is a situation. The clearest and quickest understanding of a situation can be had by stating what a situation is not. It is not an object, either single or multiple. It is not a single object, for inquiry does not recognize isolates. Inquiry always considers the single object or event in connection with other objects or events that constitute a part "of an environing, experienced world."[13] It is not a multiple object, in any sense in which "object" excludes the observer. For if objects are parts of an "environing, experienced world," an observer is necessary. An environment requires an organism,[14] and experience is an attribute of organisms, too. That is, a situation includes an observer and objects. The objects are events or facts of the existential world. A situation unites observer and objects in a transactional way. They affect each other and this effect is conditioned by their relationship in the situation.

What are the boundaries of a situation? What marks a situation off from the rest of the existential world? A situation is felt to be a contextual whole. The key word here is "felt."[15] If one did not have a feeling that the various objects, events and facts might fit together in some way, there would be no situation. As long as this relationship is only felt and not known, the situation is indeterminate. This is what is meant by a Pre-Inquiry situation. It is characterized by the adjectives vague, confused, obscure, unsettled, disordered. These adjectives describe all the factors in the situation, the existential facts as well as the "mental states of the observer. The observer's state of mind is confused, because of the confusion among the existentials. There is nothing cognitive in the pre-inquiry situation.

The boundaries of the post-inquiry situation are *known*. We call this situation determinate, by which we mean that its parts are all related in an ordered and settled way. The "contextual whole" is now clearly evident. Confusion is gone

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[13]John Dewey, *Logic: The Theory of Inquiry* (New York: Henry Holt and Co., 1938), p. 67.
[14]*Ibid.*, p. 106.
[15]*Ibid.*, p. 68.

from the existential facts and from the observer's state of mind. He knows, and what he knows is neatly recorded as knowledge. He has not "come out where in he went." The process of inquiry has changed things.

The Process of Inquiry

Problematic situations.—A problematic situation begins with questions. One might call the pre-inquiry situation problematic. But this is to anticipate the process of inquiry, [16] for that which is problematic is no longer merely felt. It has moved into the field of cognition. This is the first step in the process of inquiry. The step consists in noting that questions must be asked and answers anticipated.

Institution of a problem.—Inquiry begins with questions. The indeterminate situation is a questionable one. There is a unique quality about a situation which gives rise to particular questions. These in turn control the procedures of inquiry that are to follow. At the initial question stage, the situation begins to be cognitive. But the asking of a question alone does not consitute inquiry. For, as has been noted above, a situation unites observer and observed in a transactional way. The questioner must anticipate an answer and must take steps to check the accuracy of his anticipation. This is inquiry. The key word in discussing inquiry is *problem*. When one sees that questions must be asked and answers anticipated, one has a problematic situation; when one has determined ways to check these answers, he has a problem. "A problem represents the partial transformation by inquiry of a problematic situation into a determinate situation."[17] The very conception of a problem must suggest solutions and ways to check them. In stating the problems, one tentatively decides what can be done to actualize the potentialities anticipated. Thus to have a problem is to be well along in inquiry. "It is a familiar and significant saying that a problem well put is half-solved."[18] A problem is, therefore, not the beginning of inquiry. Inquiry is, instead, the progressive determining of a problem, and the problem is finally determined only when it is solved.

Determining a problem-solution.—The process of inquiry is here being viewed in its temporal aspect. Without violence to the principle of continuity, three phases of this process may be distinguished in analysis. First there is the noting that the situation is problematic, then the instituting of a problem, and finally the determining of a problem-solution.[19]

In this third phase of inquiry, viewed from its temporal aspect, two phases are to be noted.

The first phase in determining a problem-solution consists in finding the settled constituents of the situation or "the facts of the case." This means those

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[16] *Ibid.*, p. 107.

[17] *Ibid.*, p. 108.

[18] *Ibid.*

[19] This phase division is necessary for purposes of analysis. That there is overlapping is to be expected. The evidence of this overlapping can be seen by means of this phase analysis. Simplicity requires talk of "steps" coming "first," "second," etc., but more properly the analysis runs by phases, aspects or functions, and the order is analytical rather than literally temporal.

constituents that are already ordered. As has been noted in the discussion of problematic situation, particular questions arise due to the unique quality of any problematic situation. It is the settled constituents that produce this unique quality. So a first phase in getting a problem-solution is to state all these settled constituents. These are the "facts" of the problem, which serve to clarify it. They are obtained through observation.[20]

The second phase in determining a problem-solution consists in using *ideas*, or proposals of possible solutions.[21] There are again three phases noticeable in the use of ideas: (1) An idea, which is a forecast of what will happen when something is done, arises from observation and is born as a vague suggestion. (2) The suggestion turns into an idea by examination of how it will work. This second phase in the ideational process is called reasoning or ratiocination. (3) The idea turns into a judgment, a statement of "warranted assertability," when the idea does work. This judgment is the settled outcome of inquiry, a statement of the order replacing the confusion among existentials of the problematic situation with which inquiry began. With judgment the problem is solved.

The use of reasoning.—It remains to clarify how the phase of reasoning (ratiocination) tests whether or not the idea "works". What does one mean when one says an idea works? One means that it institutes observation of other facts not previously seen which fit all the facts together into a coherent whole. How is this done? What is reasoning?

It is convenient in analyzing reasoning to chop the reasoning process into two parts. One views reasoning thus not from a temporal aspect but from the aspect of its existential and conceptual parts. This aspect forms a second dimension which can spread over the whole process of inquiry. One limits its use here to the analysis of ratiocination.

The existential constituents of reasoning are observed facts called perceptual data. The conceptual constituents of reasoning are commonly called ideas. They are possible methods of solution embodied in symbols and called propositions. These two divisions of reasoning, the existential and the conceptual, represent nothing more than a division of labor in a single process. In reasoning, existential and conceptual constituents are manipulated tentatively through their symbolization in propositions, until their relationships are thoroughly explored. This means that of the many possible relations that have been anticipated, one fits best and suggests operations to be performed—not in reasoning through symbols but in fact— in order to check its applicability.[22]

Reasoning thus provides the means of checking on itself. Within the process of determining a problem-solution, it carries trial facts and trial ideas symbolically, until it connects them with experiment. It thus unites existential and conceptual material in such a way that both become ordered rather than disordered. The result is a determined situation (in general terms) or a solved problem (in the terms of inquiry). Perceptual materials provide the initial data and the final checking; conceptual materials provide in symbols the plan for relating all the parts.

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[20] *Ibid.*, pp. 108–109, 112–113.
[21] *Ibid.*, pp. 109–110, 112, 113.
[22] *Ibid.*, p. 112.

Returning to a temporal analysis, reasoning is seen to take place through a progressive determining of relationships. Exploring of intermediate relationships is necessary before a final (for the present process of inquiry) "best" in the sense of most unifying relationship is found. Only thus can a *judgment* (problem-solution) be made. Warranted assertability does not occur at the beginning of the reasoning process, even if *the* best relationship should be chanced upon first. For reasoning is the exploring of many possible relationships through symbols. The best relationship leads to an overt response, a checking or solving of the problem which ends inquiry. If this is done before many possibilities have been explored, inquiry is cut short. Existentials might be ordered, but knowledge is not the result.[23]

Knowledge is the end product of inquiry. It is that warranted assertability, that working judgment which results when competent inquiry is carred on. The use of this knowledge in future experience is intelligence. Mediating between knowledge and its use in intelligence is mind, constituted of habits built out of previously attained knowledge. Meaning is a word used to refer to perception of relationships.

Thus the process of inquiry gives fullest definition to terms which we encounter in any theory of growth. The reason for this is that these terms find their fullest use in the operations of inquiry.

Conclusions Regarding Discipline

Pragmatism has been interpreted as a theory of knowledge in which knowledge is subordinate to action or practice. Knowledge as instrumental has been taken to mean that knowledge is true or of value only as it is of use to the knower. The reference of instrumental here is mistaken. In Dewey's pragmatism, it should now be evident, action is necessarily involved in knowledge, but knowledge is in no sense subordinate to action. Instrumentalism is not concerned with the desires and satisfactions of the knower, but with the relationship of ideas and the connections of disorganized things.[24]

Corresponding to the mistaken theory of pragmatism as "knowledge is action that works", is the theory of discipline that motivated many activity programs: give the child something to do that interests him. When knowledge is understood as the conclusion of inquiry, this being that which resolves a problematic situation, then the place of action is seen within the contextual whole of inquiry. It is inquiry that controls action and not vice versa. Activity and interest are not significant for discipline in and of themselves but as they operate in inquiry. Controlling the whole context of inquiry is the problematic situation.[25] Discipline, like knowledge, rests in the resolving of this problematic situation.

For knowledge is not necessarily that which works. If a course of action works on first trial, it interrupts the course of inquiry and thwarts knowledge. Immediate knowledge may be the result of spontaneous activity in some theories of knowledge, but it is contrary to all that Dewey has written on the subject.[26]

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[23] *Ibid.*
[24] *The Philosophy of John Dewey*, ed. by Paul Arthur Schlipp, p. 528.
[25] *Ibid.*, p. 560
[26] *Ibid.*, p. 527.

Thus the activity and interest theory of discipline rests upon a mistaken and superficial pragmatism.

Dewey's pragmatism will find discipline in a staying power that carries through to the resolving of a problematic situation. This necessarily takes time. Quick and easy solutions do not yield warranted assertability. "To know what to do and to move to do it with requisite means," Dewey's definition of discipline given previously, needs the context of inquiry to qualify its "do's". If not, it can be interpreted into a mistaken and superficial pragmatism.

If the problematic situation controls inquiry, if a problem does not appear until the mid-course of inquiry, then discipline cannot begin with a problem. If discipline is to follow the pattern of inquiry, it must begin with observations, activity and questions directed toward the institution of a problem. Time must be allowed for development of the problem. So, the pattern of inquiry implies for discipline more careful planning of learning experiences rather than less. It also implies that course charting, instead of being done with what are frequently called "educational objectives," can better be done with aims rather differently conceived.

The learning situation must feature detailed structuring with this delayed problem in view rather than as a starting-point. And it must plan for a mutual interrelationship of subjectmatter, pupil and teacher in the planning: not just of teacher and pupil as was stated earlier, but of teacher, pupil and subjectmatter. Activity must be featured, but activity includes observation and ideational activity as well as overt responses. The mode of lesson planning indicated earlier in this study is strongly reminiscent of Herbart. The plan called for now is better named a flexible program of inquiry.

The plan called for, in view of the pattern of inquiry, must start out with an aim rather different from the sort which has come to be called "educational objectives." At least as frequently conceived, objectives are fairly rigid and specific. In inquiry, they correspond roughly to a problem already instituted, and they therefore should come in the mid-course of the learning process. The aim needed at the outset, on the other hand, is flexible and general. It corresponds to purposive questioning in the opening, problematic-situation stage of inquiry. It is nothing more than a plan for action, very tentative, a mere sketch at first. It can be called purpose, if purpose is understood transactionally as a plan for action.

The sort of aim needed differs from an objective in that it is not what ought to be accomplished; it is, at most, what probably can be done and possibly ought to be done. It is not imposed from without the learning process; it is a sketched plan for the process itself, rising out of the existing conditions and subject to change at any moment. It is not of value because of some sought-for goal at the end of the learning process; it is of value for itself alone as a guide to action. It does not exist for the sake of accomplishing thus-and-so; it exists because without it there will be no accomplishing.

This sort of aiming, or purposive questioning, is the starting-point; tentative formulation of objectives, or of a problem, is the mid-point; learning, or knowledge, is the conclusion. The first of these terms apply in the learning process, the second in inquiry.

The replacing of objectives—specific, atomized and itemized—by this sort of aim as the starting-point for the learning process is highly significant for evaluation. For when this sort of aim guides the learning process, the end has value only as the conclusion of a process of guided activity. The end is not valued as a separate result. Guided activity itself, liberating in the sense that more activities take on increasing meaning, is the prime value for its own sake and not as an unavoidable means of attaining some result. The significance of this concept for classroom evaluation should be apparent.

Conclusion

A theory of discipline, derived from Dewey's theory of growth and of inquiry, provides the following guiding principles for classroom management. As they are tried and tested in classrooms, a scientific morality of logically determined values should be advanced.

I. Characteristics of the learning process:
   a. Regarding control:
      1. Force is not educative.
      2. Control being social and non-compulsive, the child must share in his own discipline. The powers of the child must be used in effecting control.
      3. Small groups are more effective for control than large groups.
   b. Regarding subjectmatter:
      1. Subjectmatter must be manipulated, not for the sake of learning it, but for the child's own personality growth. Academic learning cannot be considered as separate from character education.
      2. Subjectmatter must be different for the child from what it is for the teacher, the levels of difference corresponding to the stages of inquiry. This eliminates cover-the-text methods, when texts are reports of knowledge.
      3. Subjectmatter must be put in the child's own terms, but attention must be given to progressive improvement of the adequacy of these terms. (This principle is related to the preceding principle but is not identical with it.)
   c. Regarding motivation:
      1. The child must have a purpose in his learning which will lead to his finding a problem. Purpose arises out of his own action; it is a consciousness of his action and a use of this consciousness to choose future action.

II. Evaluation:
   a. Evaluation standards must be relative to objective conditions.
   b. Evaluation must be of present growth. Hence it must be a continuous, day-by-day process in which aspects of growth—growth in

(*Continued on page 159*)

A BEHAVIORAL THEORY OF TRAITS

BY OSCAR OPPENHEIMER

IN OUR ATTEMPTS TO ESTABLISH A SCIENCE OF MAN we are greatly hampered by the fogginess which surrounds the meaning of the key concepts. The main reasons for this are the lack of one universally accepted theory underlying each concept, and the existence of many theories sharply disagreeing with each other. I shall try to clear up the exasperating situation in regard to one concept which is crucial for Psychology, Education, Biology, Sociology, History, and Philosophy, namely the concept of trait.

Trait theory today presents a confusing and unsatisfactory picture. There are a good number of theoretical systems; some are overlapping, others are mutually exclusive. The only point on which all agree is the importance of the subject. Gordon W. Allport expresses a widely entertained opinion when he says: "Scarcely anyone has ever thought of questioning the existence of traits as the fundamental dispositions of personality." (1, p. 286). If this is true, the anarchy existing in the field of study of traits is even more deplorable, and the need for much more, if not for perfect, agreement, even more pressing. How does it happen that we have so much disagreement? I suggest as the main reason that in the wide and complex setting in which we find traits, everyone has embraced some feature that has a vital bearing on traits and has called it trait, and being much aware of this vital bearing has overlooked the fact that something that has vital bearing on something else is not identical with it. An additional reason for disagreement would be bias in favor of a certain psychological school or in favor of a certain approach to psychological material.

In this paper I wish to present a new theory of traits, and to compare my theory with another leading theory. In doing this I shall put emphasis on a thorough constructive criticism of the main points of other theories. Our hope for a more generally accepted theory lies in the open-minded and searching exchange of ideas, not in the defiant singing of one's own song.

According to my definition, a trait is any recurrent aspect of the external behavior of the individual. Let us look at each single part of this definition. First, a trait is present in the external behavior of the individual. This excludes any suggestion of putting all or part of a trait among the phenomena which are not a part of the external behavior, although they may determine it. My theory also asserts that traits are present in our experience, not inferred from it. When I say a man is honest or punctual or lazy, honesty, punctuality or laziness is present in his actions, for him or for us to see. Whether traits are present or

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inferred is very important. If they are present, we are certain of their existence (at least as certain as we are of the existence of any objects of our perception). If they are inferred, they are hypothetical and uncertain, no matter what degree of uncertainty they may have.

It is true that we recognize a trait as such only after it has recurred a number of times, and this is the main reason why many consider traits products of logical reasoning. But who does so confuses the *ratio cognoscendi* with the *ratio essendi*. For while it is true that a trait is recognized (*ratio cognoscendi!*) usually when it recurs, it is equally true that it exists (*ratio essendi!*) independently of its being recognized. There is a second reason why the empirical nature of traits is not accepted, namely that traits are not present in the same way in which sensations are present. Yet many other parts of our external behavior are given to us in a non-sensory way, e.g., values: when I see an athlete throw a shot-put the value of beauty is present in the coordination of his movements as part of his behavior, but is not sensory. A comparison of traits with values is helpful in another way. Traits are characteristics of sensory parts of behavior just as values are. In our illustration there is no beauty without the coordination of movements. In the same manner there is no trait without the part of the behavior on which the trait is based.

Some Difficulties in Analyzing Traits

Stagner calls these parts of the behavior on which traits are based "indicators". He gives the following illustration: "For the trait of sociability-seclusiveness, specific indicators might be declining an invitation to a party, crossing a street to avoid meeting some recent acquaintances, planning one's day so that social contacts will be improbable." (5, p. 151). As we see from this illustration, indicators may be entire actions revealing nothing but the trait, as it could be in the case of crossing the street. Or they may be part of a more comprehensive action, as in the process of planning my day, when one part of the day may be planned so that I will avoid seeing anyone, another part so that I may satisfy my scientific curiosity, and in so doing I disregard that I will see many people, e.g., going to a lecture. So one part of the more comprehensive action will indicate my trait of shyness, the other will not. Third, the same action or part of a more comprehensive action may be an indicator of a number of traits. Burying myself in a library may be indicative of traits of seclusiveness, scientific interest and persistency all at the same time. We are still under the spell of the Hobbes-Locke tradition which hampers us in seeing more in perception than sensory experience, and this is particularly true when we deal with phenomena like traits which, although non-sensory themselves, are built on sensations. So even Stagner, who has a clear understanding of the relationship between indicators and traits, calls the latter logical constructs. In this context it is interesting to consider what Allport has to say. He states: "Traits are discovered in the individual life . . . only through an inference (or interpretation) made necessary by a demonstrable consistency of the separate observable acts of behavior." (1, p. 314). He comes as close as possible to my theory without accepting it. He sees the indicators as part of the behavior, and he sees the necessary relationship between them and traits. But he does not take the next step of making traits a part of external behavior, although he sees how closely they are connected with it. He stops at this process of inference or interpretation which precedes our experi-

ence of traits. I may infer from a number of incidents of behavior of an individual that he is lazy, but after I have made this inference, the trait of laziness is given to me in a new incident of behavior of the same person. Its origin in inference does not take anything away from its presence as a bonafide part of my perception. In the same way, Stagner's theory of the origin of a trait in a logical construct does not make it impossible for the trait to be part of my perception. We perceive how behavior recurs and we think about this recurrence, and form a logical construct that we call trait. But this is not the end of the same process. We continue and when the behavior occurs the next time we experience the trait as an integral part of behavior. Here, as on many other occasions, we must beware of making the distinction between perception and logical thinking too rigid. For our perception is shot through with products of logical thinking which are as legitimate a part of the perception as any sensory element is.

In the last few decades, with the help of a long series of interesting experiments, we have become acquainted with the effects of motiviation on perception. As motivation affects perception, so does thinking. As in Bruner and Goodman's experiment in which the children perceived larger coins due to their motivation, so we perceive the trait of laziness due to a history of experience and thinking. The trait of familiarity offers the best single illustration for our present discussion. This trait always originates in experience and thinking preceding my present perception of it. Yet it is present in my perception as an element in the objects perceived, and often as an outstanding element. How different is the campus which the senior sees from the "same" campus perceived by the freshman, due to the difference in familiarity. The difference is so great that we are tempted to talk about two different campuses, and because of the difference perceived we may find opposite emotional reactions: the freshman may react with fear to the unfamiliar, the senior with love to the familiar campus.

FURTHER ELEMENTS IN A DEFINITION OF TRAITS

By establishing traits as present in our perception, I am far from overlooking the difficulties we often have in analyzing traits. But these difficulties have nothing to do with the reality of traits. We have the same difficulties with many phenomena in our field.

In turning to the second part of my definition it is my contention that traits are mere aspects of man's external behavior, not whole actions. This will play a role particularly in discussing habit theories of traits. When a boy lies in the summer meadow following with his eyes the flight of the birds in the sky, he is lazy—he should be at home doing school work—but at the same time he has keen esthetic experiences, he is fashioning his future in day dreams, he is suffering from gnawing hunger pangs, or he is in deeply mystic communion with nature. All this may be present in the same piece of experience of which laziness is just one aspect.

In my definition, the third point for discussion is my belief that *any* aspect of external behavior, if it occurs, is a trait. The percept of trait should be all-comprehensive in the field of external behavior. As important as it is to keep traits within the boundaries of external behavior, it is just as important to know that, within those boundaries, they are found everywhere. As we shall see, all trait theories which refer to certain parts of personality to explain traits have

been more or less exclusive in calling traits only those aspects of behavior which are effected by the respective parts of personality in which the theories are interested. Just as there is no justification for exclusive emphasis on certain parts of the etiology of behavioral aspects, there is no justification for keeping the field of traits narrow. So any recurrent aspect of behavior, whether it stems primarily from motives, from physiological conditions, from habits, from judgmental frames of reference is a trait,—and by now it has become a commonplace that no aspect of behavior can be explained solely by one factor at the cost of neglecting the others. Caution in the use of a sick limb, clearing the throat, all kinds of emotionality are traits if they recur, to the extent that honesty, punctuality, and laziness are traits. All of them form keys to the understanding of the entire personality.

Fourth, my definition omits any specification as to the number of recurrences required to establish a trait. Is a person honest if he has been honest on five out of fifty occasions or does he have to be honest ten or fifty times in the same sitting? My answer would be that he possessed the trait of honesty when he was honest twice out of fifty times, and that dishonesty is not so much the opposite to honesty as it is a low degree of it. The difference between someone honest twice and someone honest fifty times on the same fifty occasions is nothing but a difference of degree. This difference is not entirely quantitative, as it may appear at first glance. For we will have to consider the ease with which people are allowed to stay honest in so-called identical situations. Consider the difference in the case of one with the score of two instances of honesty against great temptations with the state of a person with the score of fifty who on all occasions had a very easy time in acting honestly. Let us say the one is very poor and the other very rich. In some cases we may even feel inclined to talk about traits even if there is only one but a very outstanding example: we may call somebody courageous for one great deed of valor.

Many will hesitate to widen the field of traits so radically because in our past studies high consistency of a trait has been very significant for practical reasons. The more often a trait recurs the safer it is to predict new recurrences in the future, and this safety counts much, for example, with the man who hires somebody on the basis of recommendations if they consist largely of an enumeration of traits. But in the theoretical field it is dangerous, on various counts, to contend that in order to understand personality we need traits of frequent recurrence because they form the cement which holds personality together or they provide us with the structure of personality. First, if it is true that traits provide personality with structure, then a person with traits of very frequent recurrence is a person with a very well structured personality. But, aren't we just as much interested in individuals with poorly structured personality? Second, is structure really so important to personality? Are we not in danger here of answering the question prematurely as to what the criteria for personality are? Can we not conceive of a person as a strong personality who has only few traits of high recurrence because he is very creative and original in his approach to life? In his case if we wanted to apply the ideal of high consistency we would say he is highly consistent in being inconsistent. It appears that the practical usefulness of the concept of high consistency has greatly favored a view of the average personality abounding in traits showing high consistency, and has dimmed our eyes for the view of a superior type of personality. Yet, we should be interested in all types.

A third good reason why we should get away from the one-sided ideal and should turn to all varieties of behavioral aspects is present in the fact that the quest for high consistency of traits is often coupled with the assumption that the etiology of those traits shows similar consistency. Nothing is less true. A person may have been honest with high consistency all through his life while there may be great change in the etiology of the trait. In his childhood he was honest out of respect for the teaching of his parents, in adolescence because he embraced honesty enthusiastically as part of an idealistic scheme of life, in adulthood because in the part of society in which he happened to be, a reputation for honesty paid off handsomely.

FREQUENT RECURRENCE AND DEGREES OF RECURRENCE OF TRAITS

In the literature on traits there are many incidents illustrating the dire consequences of too great an insistence on frequent recurrence of traits. As elucidating an example as any is furnished by Guthrie's discussion of personality traits. He contends: "Is there a measurable general personality trait, like rebellion against authority, or neatness, or promptitude? It is here argued that such traits may in one sense be asserted and at the same time pronounced of little significance or value." (4, p. 61). Because he thinks traits are of little value he suggests a substitute: "Our ability to describe persons depends on our ability to name classes of situations to which he has learned adaptations. More information is conveyed about a man when we name his calling than when we attempt to name the vague qualities that constitute extraversion or dominance or indecision. When we know that a man is a professional soldier, we know much about his skills and abilities, his style of thinking, his carriage, his opinions, his ambitions." (4, p. 61). What he considers a better alternative to traits is nothing but part of the etiology of certain traits: If a man deals with a number of situations in a very similar way on the basis of his training as a soldier, he will develop certain traits. Guthrie also overlooks the fact that only in some instances he will be right in considering those traits more important than what he calls "vague qualities like extraversion or dominance or indecision." In other instances traits which have little or nothing to do with a person's professional training are the important ones: In spite of the same kind of intensive training and of identical traits stemming from this training, how very different important personality traits could be found in Generals Eisenhower, Bradley and McArthur!

If Guthrie were more flexible in his view of traits, if he would not insist on calling personality traits only the most often recurring ones he could see their great importance. One final example: "What they (writers on personality) seek are descriptive traits that apply to all his behavior. In fact, we do find some evidence of such traits. There are people who have acquired with their occupation the manner fitted to the occupation, the deference of the waiter, the aggressive good-fellowship of the Y.M.C.A. secretary, the art of "being in the know" of the practical lobbyist, the bedside deportment of the physician, the ready classroom omniscience of the high school teacher, the air of decision and authority practiced on the bench, the habits of qualification of the college professor. But few of the owners of these manners can be trusted to exhibit them in situations remote from the occupation. The querulous behavior of the famous judge when he inquires of his wife the location of his black tie for evening wear, or his garrulous accounts of his golf game in the locker room have little resemblance to

his aloof command exhibited on the bench." (4, p. 62). As much as Guthrie's colorful description applies to some, there are others who will carry the dignified behavior in court to all or into part of the rest of their living. Since we are interested in all, we should study all by dropping the bogus notion of very frequent recurrence as the main criterion of traits.

A very rich and significant picture of personality will emerge from comparison of the many *degrees* of recurrence of the same trait in a large number of individuals, particularly if the differences are tied up with differences in the etiology. Dudycha's study of punctuality exemplifies this case beautifully. The author summarizes rightly: "We can hardly say that there is a general trait of punctuality—or its opposite, tardiness—which operates in the whole group." But the loss of the general trait is small indeed when we see how the study of the great difference in degree could lead us far into the depth of individual personality. We find that some students are punctual in arriving at social parties, but tardy in arriving at class, while with others the reverse is true. If we raise the question why, we come to differences in motivation, habit formation, bodily and emotional conditions, all of which are vital for our understanding of individuals as unique personalities.

It becomes clear how broad my view of traits is when we combine our two last steps, namely, calling any aspect of behavior a trait, *and* calling it so regardless of the number of recurrences.

Similarities Found to this Definition in Other Trait Theories

The trait theories closest to mine are the social stimulus value theories, for the principle reason that they put the trait where it belongs, namely into external behavior. There is great merit in this because most other theories have not been satisfied with finding something in its right place, but have used great ingenuity in shifting it to new, more or less distant, positions. The appearance in the framework of external behavior makes the trait the invaluable personality part of every individual which can be observed by others. Otherwise psychology would have to rely only on introspection. We can only infer our neighbor's motives, thinking, dreaming, emotions, yet his traits we observe directly. This remains extremely significant even if we shall shortly be forced to admit that the full meaning of a trait is found only if we use all inferred phenomena in order to provide us with material for the trait's etiology. Unfortunately, social stimulus value theorists are not content with this original finding. For after having securely located traits in external behavior, they use a magician's trick to conjure the traits away by saying that all that we deal with when we discuss traits are contentless words or logical categories, nothing real. This unfounded second part of the theory, alien and unrelated to the first part, has brought the theory into disrepute, and has made it easy for the critics to throw the baby out with the bath water and to neglect the solid contribution which this theory would have made otherwise. This fact is the more regrettable because the prestige that social stimulus value theorists enjoy in wide quarters would have helped the acceptance of a sound trait theory.

The habit theories which identify traits with habits of a higher order are also aware of the general place where traits are found. Traits, like habits, are found in external behavior. But habit theorists in trying to determine the exact place

are inaccurate in three ways. First, traits are found in places where we do not find habits. Many pieces of behavior, very different from habits, show traits as a recurrent aspect; it may be a man's trait to make clear and fast decisions in novel situations, or to think of many ways of extricating himself from them. We deal here with the kind of situations where our habits stop functioning. Second, where we find traits connected with habits, habits are full-fledged actions while traits are only aspects of actions. So we find different traits present in the same habit. The habit of brushing one's teeth may carry not only a trait of cleanliness, but also a trait of thoroughness or of punctuality. Or, as Allport has shown, a certain trait may be an aspect of various habits, e.g. politeness is found in a number of habits, called manners. Third, a habit has motivating power, a trait has not. This difference can be easily obscured in a context in which a trait is an aspect of a habit especially if we are not concerned with keeping closely connected phenomena separate in our thinking. A habit after being solidly established runs under its own steam, the original motivation becoming unconscious, while a trait very often appears with actions which are the product of new conscious motivation. The trait does not appear automatically because it appeared many times before as the habit does. The field of moral traits offers the best illustrations. A man appears truthful repeatedly although each time he has to go through a tough fight with an inclination for lying. If this trait were automatic, as a habit is, no place would be left for such a fight. This does not, however, exclude the necessity when confronted with an incident of truthfulness, to investigate whether the trait is part of a situation similar to the one described or whether it attaches to a habit. In concluding the discussion of habit theories, one may raise the question as to how it happens that at first sight there is so much plausibility in this type of theory. It appears plausible because traits are frequently attached to habits, and this, in turn, is easily explained by the fact that habits by their very nature meet one main criterion for traits, namely recurrence. If an action is repeated many times it will of necessity show repeatedly aspects which we call traits. Our problem in dealing with trait and habit is one of careful discrimination, so we will not lump together the two phenomena, only because they show similarity in nature, and often appear together in our experience.

GORDON W. ALLPORT ON TRAITS

In the preceding part of this paper I have presented a new theory of traits. In the remaining pages, I shall examine one of the leading modern trait theories in the light of my findings, namely G. W. Allport's.

The co-appearance of phenomena in our experience is very relevant to Allport's theory. He holds that traits are motives. His theory has proved very alluring to the student of personality because modern psychology of personality is dynamic, which means that motives play the all important role in it. Moreover, in the etiology of traits we almost always find motives. Yet, I am inclined to think that no other theory obstructs progress in seeing the nature of traits more than does Allport's for the following reasons. First, it prevents the observer from seeing the other factors, besides motives, which contribute to the etiology of traits. Second, the exclusive emphasis on etiology keeps the observer from examining external behavior, and obscures the varied relationships existing between traits in external behavior and motives. The significance of these relationships for the understanding of the whole of personality is one of the main reasons in

my own theory for putting traits into the context of external behavior. Let us take honesty as an illustration. When two people are honest, the one may be honest mainly because honesty pays in prestige in the honest society in which he lives, while the other is honest in a society of crooks because he is morally motivated, and staying honest is to him the trait of a good person. We deal here with the same trait of honesty, the factor that differs widely is the etiology. The identity of the trait is lost in Allport's theory. He assumes that there are two traits because there are two etiologies. Yet the identity of the trait is all important not only for our theoretical discussion, but for innumerable and potent practical reasons. A certain degree of honesty in our dealings with others is one of the foundations on which our society rests. No matter where this honesty comes from with different people, without it society would disintegrate. Recognition of the identity of traits also elucidates many of the relationships between traits and motives. We can observe how variegated the relationships are, how the same trait can be based on different motives with different people, or with the same person in different stages of his life, or how people differ because one individual has more traits with an unchanging motivation than another has, or how the same motive leads to different traits, as in the case of the motive of social prestige that may lead to a trait of aggressiveness in a competitive society and to a trait of cooperation in a cooperative society. This we cannot observe if we identify traits with motives. Allport sees rightly the relevance to trait theory of Lewin's concepts of phenotype and genotype, but he spoils their usefulness by finding traits among both when they are present only as phenotypes.

Somebody may wonder whether my argument here applies to more than terminology, and may reason that, considering the arbitrary manner by which we label phenomena, Allport is just as free to call motives traits as I am free to call aspects of external behavior by this name. I am willing to admit that to a degree we deal here with a problem of terminology, but not in the sense that the critic sees it. The phenomenon that Allport calls traits already has a good name, namely motives. It seems unnecessary to give it a second name, and it leads to confusion if by doing so we forget to reserve the name for another quite different and equally important phenomenon.

Allport has studied the entire field of traits including their nature and their etiology more extensively than anybody else, and has made many valuable contributions particularly to the understanding of the etiology of traits. A good example for the originality and soundness of his observations is found in this statement: "Is the personalized trait dynamic in the sense of being self-active? Does it in and of itself initiate behavior? Strictly speaking, no; any disposition must be aroused before it is dynamically active." (1, p. 321). Yet, it is a good example only of an important characteristic of trait motivation, and not as Allport intends it to be, of traits proper. The same applies to the discussion which follows: "In another sense traits do initiate behavior. It is certainly not a ring on the telephone nor a friend's voice over the wire that causes an egotist to talk for half an hour unchecked about his latest exploits, or a gossip to recount at great length the doings of her neighbors. In these cases the response springs from deep-seated traits of personality and not from a ring on the phone followed by a friend's voice over the wire." (1, p. 321). How well the complex relationship between external stimuli and motives is presented! But again, it has nothing to do with traits themselves.

THE PLACE FOR TRAITS IN ALLPORT'S SYSTEM

As he ranges over the entire field, on a few occasions Allport glimpses the true nature of traits, but is unable to find the proper place for them in his system. It is most obvious in his attempts to distinguish between the "truly motivational" traits and the ones which have "a defining or directive influence upon conduct, without true motivational significance. Some traits have less to do with stress than with style." An example which he gives for the latter is politeness. It is difficult to see what the difference between "true" motivational significance and directive influence should be. When I compare an example of the one with an example of the other, let us say initiative with politeness, the motive underneath the former in many instances may be conscious while the one underlying the latter may be unconscious because politeness often is a trait which is the aspect of a habit. But this difference does not warrant the distinction between two classes of traits. Even in the case of habitual traits, motivation is present, even if unconscious. Furthermore, sometimes, as Allport himself admits, politeness is based on a conscious motive, and showing initiative sometimes may be habitual even if this occurs less often than politeness. I believe that Allport tries to set up the second class of traits because, to a point, he is aware of the need for avoiding an exclusively motivational view of traits, and of the need for arriving at a more behavioral concept. In the following quotation in which he summarizes the phenomena which he would call traits he offers another good opportunity to observe how inconsistent a view of traits becomes when it tries to identify them with motives and yet wants to salvage some of the behavioral aspects: "Interests, ambitions, compulsions, phobias, general attitudes, inclinations, hobbies, values, tastes, predilections, and the like, are all traits, and are at the same time motives." (1, p. 322). These are phenomena differing very much in nature. Compulsions, phobias, inclinations belong to the etiology of traits, while interests, ambitions, general attitudes, tastes and predilections are bona fide traits. Hobbies are complete behavioral activities which may reveal traits, but which are much more comprehensive than traits would be. Values are elements in perceived or imagined objects, e.g. truth, beauty, holiness which only in a very indirect way deal with traits.

As a last example, to illustrate the way in which the lack of distinction between etiology and nature of trait has misled our author, let us examine his discussion of individual versus common traits. His discussion abounds in fine and valid observations wherever it does not touch upon our distinction. Yet wherever it touches on this distinction, I find it untenable. He contends: "Strictly speaking, no two persons ever have precisely the same trait." Using the example of aggressiveness he states: "Though each of two men may be aggressive (or esthetic), the style and range of the aggression (or estheticism) in each case is noticeably different. What else could be expected in view of the unique hereditary endowment, the different developmental history, and the never-repeated external influences that determine each personality? The end product of unique determination can never be anything but unique." (1, p. 297). I would say that etiological factors of heredity and environment which he quotes may differ greatly, and yet two people may show the same trait of aggressiveness. Allport overemphasizes the closeness of etiology and nature of a phenomenon. So in another context, he says that means and ends cannot be separated. (1, p. 241). It is a truism that the end is always realized by the means, but this does not exclude the possibility that in two different instances the same end could be reached by

different means. Allport's quotation on aggressiveness mentions another evidence for the uniqueness of traits, namely their "style and range," the behavioral context in which they appear. Again differences here do not make impossible the identity of traits. E.g., if one person expresses his aggressiveness by bodily attack, the other by verbal invective, it may be a difference suggested by differences in culture or in personal equipment, but the two may be equally aggressive. The fact that we cannot follow Allport in his reasoning against identical traits, does not mean that there are not other reasons why it will be difficult to show their existence. The main difficulty seems to me to lie in measuring the strength of traits, and in trying to do this we may never get farther than arriving at an approximate equality of strength.

In concluding my discussion of Allport I shall discuss a more specific formulation of his theory. He says: "trait is a determining tendency implying a readiness for response. The phrase 'determining tendency' has both a narrow and a broad connotation. In its narrower sense it refers specifically to a mental set that facilitates the solution of a special problem or the execution of a certain act. In its broader sense, it is any directive tendency or condition of readiness for response. The doctrine of traits may be ordered to this broader conception." (1, p. 290). I do not think that the distinction between mental set and a broader conception of determining tendency is a great improvement of the theory. For, how ready, in either way, am I for response in traits like laziness, caution, indecisiveness, shyness? Depending on motivation there may be readiness for response or lack of it, traits like cooperativeness or initiative go along with readiness of response, and others do not.

Before concluding my discussion of Allport, a more positive statement regarding the significance of the etiology of traits is in order. Because it was my task to demonstrate how in Allport's theory motivation, although it is a very important part of the etiology of traits, is wrongly claiming to be identical with traits themselves, the positive significance of the etiology of traits was not stressed in spite of the fact that it is really great. With the help of the study of their etiology the interpretation of traits takes place which is necessary to provide us with the full picture of the phenomenon. As interesting as it is to know that two people have the same trait, it is just as interesting to see how the same trait differs with them in its etiological background. Returning to a former illustration, I find it very important for the maintenance of a society to have many honest people, no matter what their reasons; but it is equally necessary to consider the differences in reasons when we study single individuals. If a society shifts from emphasis on honesty to laxity, then the individual whose honesty is based on compliance with society will take part in the shift, while the individual believing in honesty as a moral virtue, no matter what society thinks, will remain honest.

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SOME NEGLECTED PHILOSOPHIC PROBLEMS OF EDUCATION*

BY NATHANIEL L. CHAMPLIN

IN ITS REPORT[1] TO THIS SOCIETY IN THE SPRING OF 1954, the Committee on the Nature and Function of the Discipline of Philosophy of Education included two distinguishing characteristics of the discipline: (1) unique conceptual tools, different from those of psychology, sociology, administration and economics included in which were such theoretical constructions as *meaning*, *value*, *value criteria*, *truth*, *method* and *dualism*, and (2) the employment of these tools in descriptive analytical, critical-evaluative and/or speculative work upon the problems of education.

The committee included also a conception of education. For purposes of consensus it adapted the reference to organized nurture or institutionalized schooling, and it went on to state that value judgments, judgments of preference or normative decisions, were at work in the formulation of goals, procedures and resources in education, thus defined. These judgments together with the criteria supporting them, continuing the report, constitute subject matters peculiar to the discipline of the philosophy of education and not peculiar to, for example, the disciplines of psychology, sociology or administration.

The present paper seeks to extend this report by indicating some of its consequences for the formulation of subject matter responsibilities for the discipline of the philosophy of education. It skirts issues having to do with the broadly conceived goals of education and confronts some other value problem domains: such *institutional practices* as pedagogy, curriculum and administration, all service functions admittedly instrumental to whatever, and however established, the goals of education, and *resources* such as the various sciences, the arts, philosophy and, possibly, religion.

VALUE PROBLEMS IN EDUCATION

Pedagogy, quite often misconceived as one with education, has to do with classroom teaching and the relationships obtaining between teacher and students. Of immediate philosophic concern here we find the choices and criteria of students and the choices and criteria of teachers. Children, for example, have conceptions of what constitutes a good boy, a good girl, a good mother, a good father and a good teacher. They make choices for what to do with their spending money, how to be present at the dinner table, how to be a student, what games to play, with whom to play them, and they make choices with respect to the kinds of questions they ask of, or the kinds of influences they are to have upon, their teachers, playmates or parents. These choices, judgments if you will, are sourced

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in implicit or explicit criteria and, together with the criteria, constitute a subject matter of the philosophy of education.

There are hosts of value problems here which have yet to be described and formulated and which have yet to be confronted by the discipline responsible to the task. We do not find, for example, texts carrying titles such as "Normative Problems and Criteria of the Elementary School Child" or "Value Judgments of Secondary School Children." Indeed, were we fortunate enough to have them we would still find few elementary school teachers with the philosophic training necessary to using the information. Both are necessary if we are ever to have classes in which children learn to single out, gain, and reflect upon value problems *significant* for their experiences. Each is required if we are ever to have classes in which children *practice* reflection upon, for example, the source of criteria for establishing the good.[2]

Nor must we suppose that value problems in pedagogy are restricted to elementary and secondary students. College students have unique value problems centering in large measure in the choice of a profession and in the choice of someone with whom to share a life. We must not suppose, either, that students only have value problems. Elementary, secondary and college teachers have them. There is the choice of a theory of learning, a choice of a way of achieving class attention, a choice of how to be related to other school personnel, a choice of costume and appearance in the pedagogical situation, a choice of playground games, a choice to question or not question the administrative-economic criteria which forces them to spend endless hours filling out forms and reports, a choice of professional groups with which to become associated, and a choice as to how to build the status and meaning of the educational profession.

Curriculum construction is another relatively unexplored area, and here we have a dilemma indeed. For it is here that the choice to include or not include provision for the development of value discrimination is made. On the college level, *the choice to include or exclude the discipline of philosophy of education is itself subject to philosophic scrutiny*; and it is surprising, indeed, to find some philosophers, after having gained influential status in curriculum decision making, pushing philosophy from the required curriculum and promoting the very normative ignorance and negligence for which education is under attack. Putting it another way, we have educators, who, oddly enough, quote a Dewey, Kilpatrick or Bode while they proceed systematically to kill the goose (philosophy) that laid the golden egg. We have philosophers who would turn us to the literary-historicist dialectic of the humanities;[3] to alleged unified concepts of nonunifiable and non-normative sciences, to child-development-mental hygiene, or to an anti-intellectualism that is what Dr. Villemain has labeled the "horticultural theory of education." I suspect that nothing would shock these philosophers more than the claim that courses in philosophy—provisions for value discrimination and

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[2]They already *have* such conceptions as is evidenced by the statements: "What is good is what mommy says is good." "What is good is what doesn't hurt me." "What is good is to stay out of trouble." "What is good is what the Bible says is good."

[3]This is not to reject the humanities—the sweep of ideas and art—as a major resource for education. It is to reject the use of the humanities as an *alternative* to philosophy of education; for the employment of the humanities as an alleged substitute presupposes that the student has come to school already equipped with standards for assessing and making critical choices from among the riches offered by the humanities.

intelligence—are *required* in the curriculum not only of the teachers colleges but *also of the elementary and secondary schools.*

Now it is true that some curricula value problems do receive philosophic attention. Whether or not to include religion in the curriculum is one. But there are also questions to be raised about the three R's. Surely there are value problems here! The choice for spelling lessons is, isn't it, a choice for words to spell. And can we ever have the three R's without having implicit or explicit conceptions of the good boy, girl, mother, father, work or profession, and community? Do we have research providing us with accounts of these hidden conceptions? The answer is, I'm afraid, "No."

Next we turn to administration as a procedural discipline and we begin by asking ourselves if administrative efficiency, when achieved, provides criteria appropriate to dealing with the normative problems administration confronts in the educational system of a democracy. Plainly not; for efficiency was achieved in Nazi Germany and, we are assured, is being achieved in the Soviet Union. We can go on to list a range of community—pressure group—school policy decisions that are being made. We can locate criteria utilized by administrators in hiring and firing teachers and other school personnel, in formulating budgets and distributing funds. Yet, again, volumes titled "Normative Problems and Criteria of Educational Administration" are not to be found, and little is being done in certification circles toward holding administrators responsible for developing philosophic skills appropriate to their normative office. (The consequences of this normative negligence were felt in the recent past at a local philosophy of education conference where, upon being asked what his value problems and criteria were, a school superintendent was unable to answer except to say that he proceeded according to the golden rule. At another conference, another administrator cited business journals as authorities in determining the kind of teachers and "products" we should turn out—a little like saying what is good for American business is good for education).

PHILOSOPHIC APPRAISAL OF EDUCATIONAL DISCIPLINES

Then there are the descriptive resource disciplines—history and the history of education, sociology, psychology and descriptive research. The problem of choice from among alternative extendable traditions in education and the problem of selecting problems for historical and other inquiries are clearly normative and require philosophical scrutiny whether by the philosopher or by the philosophy—specialized skill—education trained inquirer.

Psychology, too, demands philosophic appraisal if for no other reasons its strength and influence in normative matters and its scientific status. Skinner tells us[4] that psychology does not answer value questions yet we find the categories adjusted-maladjusted, normal-abnormal, sick-health and well-integrated-personality operating in such a way as to promote status-quo or conservatism and to cover up value judgments cloaked in the guise of a science.[5] We are informed, further, that psychology is "far from being an exact science," that it is an "emerging

[4]Skinner, Charles, *Educational Psychology* (Prentice Hall, 1951), pp. 2–5.

[5]Those who plead for an *integrated* person and an *integrated* curriculum have yet to provide us with conceptions which would permit us to determine (1) *what is* integrated, (2) *what does* the integrating, and (3) *criteria* with which we determine whether or no integration has been achieved. Thus we find value preferences of a curricula sort working, in some circles, under the title of "core."

science", yet we find students sitting through required classes unable to distinguish between the scientific and non-scientific with respect to such categories as emotions, intelligence, ego, drives and perception. Then, too, psychology cannot proceed without adopting a theory of mind, intelligence and learning, and, where it is often held that alternative psychologies are presented in the form of S-R, Gestalt and field theory, we find that all are sourced in the sense or materialist-realist account of mind, intelligence and learning. This suggests that we may be valuing indoctrination as we put students through these courses without putting them first, or ever, through courses in alternative theories of method, intelligence, learning and mind—courses in, at least, comparative philosophies of education. (I'm reminded of the college context which forced two of our members here to look elsewhere in order to practice their *professional* competencies. One of the formative influences held that philosophy grows as an integrated part of experience and is not learned in "artificial theory situations." "But that itself is one theory," the philosopher of education insisted. "Shouldn't we give the students the alternative theories including that one?" "You're the one that wants to bring theory in," he said, not a little impatiently. "What I'm saying is that the child interacts with his surroundings, problems are generated in this interaction, concepts perceived, and the total experience resolved. Concepts and values arise in these *real life* experiences and rather than have student-teachers sit in *artificial* theory situations, we must have them go out and observe the schools and children, perceive the problems and concepts of education and development, and record their experiences in *real life situations*." "But you're now giving me a theory of learning and education alternative to others," the philosopher objected. "We're not communicating," he said. "You're the one with all the theory. What I'm saying is that theory arises in practice and . . ." He went on to repeat himself never indicating (1) how student-teachers *perceive* the concepts of child development while watching a child perceive concepts, (2) how working exclusively upon ideas and theories is not a form of human *conduct*, human *practice* or human *activity*, and (3) how he, himself, was *not* working with a theory of learning and education.)

Social psychology and sociology are other disciplines shot through and through with normative assertions and proposals because, like psychology, they are in education. Any science entering education enters normatively, for an educational science of the sort we have in *educational* psychology or *educational* sociology is a case where a normative discipline, education, joins with a descriptive discipline. This distinguishes educational sciences from what are alleged to be liberal arts sciences. Further it suggests that the psychologist or sociologist, child developmentalist, historian, economist, anthropologist, or political scientist who is not trained at once in the discipline of philosophy of education and in the problems of education peculiar to his office or function is incompetent, or inadequately prepared, to enter into teacher training programs. *In short, it is being held that the educational scientist has a critical proposing function, the nature of which has yet to be delineated, established, and provided for by the discipline of the philosophy of education.*

We might press into educational political science and educational economics and their resources, and show how they, together with sociology, might redefine and assess societal structures—educationally, and how they might press into the educational problems which rise with foreign and domestic policy decisions. We

might turn attention to the philosophic problems generated by legal decisions, as in the Supreme Court decision on desegregation.[6]

And we might develop the value structure of the arts in general and of art education in particular. Value judgments having to do with their status and function are being made in the classroom, curriculum council, certification committee and dean's office. Decisions with respect to whether the arts function instrumentally in the service of knowledge gaining or therapy, or function intrinsically with knowledge and physiological well-being in *their* service are being made with the "palm of importance" turned to the former functions. And, if we hold, as some philosophers do, that qualities of line, color, texture, sound and gesture, the stuff of art and the subject matter of art criticism, permeate *all* learning situations, then here too we find a range of value choices and decisions of philosophic concern.

LOCATING PHILOSOPHIC PROBLEMS OF EDUCATION

We must not suppose that the philosophy of education has only to do with the schools and students. We must remember that what we do to the child we do to the culture. We must remember that the schools provide consequences for *other* institutions and practices in and throughout the human scene. How the schools alter and *should* alter human life and conduct outside the schools—in labor, business, religion, politics, civic functions and government is a principal problem area. How other groups and institutions alter and *should* alter the conduct of those in the schools is another principal problem area. Making these alterings articulate, forging criteria with which to evaluate them, and planning for them or their alternatives is another and centrally important philosophic responsibility. Quite tragically this role is often lacking in educational practice. We have, therefore, another fundamental problem for the philosophy of education—one that attempts to thread its way through this paper: this is the problem of *locating distinctively philosophic problems of education*, for as we do this we literally create the philosophy of education and the conditions necessary to its earning its bread and butter in education and, hence, in the culture.

One's location in the institution of the schools as student, administrator, elementary teacher, or philosopher of education is the major determining factor in shaping one's professional value problems. Developing a value intelligence means finding and working at these problems with the tools and skills of the philosophy of education. For this task, vast areas of unexplored research must be opened. The value problems peculiar to, or characteristic of, different age groups, teachers, guidance personnel, curriculum builders, administrators, certification people and educational labor and policy leaders must be made available so that we can fashion the philosophic learning experiences appropriate to these normative problem areas. Texts which describe and report upon the normative issues of education must be pressed into the pedagogy of every "level" of learning, and into every departmental function of education. (Indeed, the absence of these materials is, perhaps, the major reason why so many are disappointed and impatient with the state of philosophy of education.) Classes, not in philosophy *of* educational administration but in philosophy *and* educational administration,

[6]The decree makes reference to educational adequacy and assumes, thereby, a range of criteria. As such it becomes subject to the analysis of philosophy of education as well as, possibly, the scrutiny of civil liberty concerns, psychological and sociological interests and administrative disciplines. Here is a genuine service the discipline of philosophy of education can perform, both for the court and the schools.

classes, not in philosophy *of* art education but philosophy *and* art education and classes not in philosophy *of* educational research but philosophy *and* educational research must be fashioned if we are ever to count where we ought to count in educational practice.

We cannot, I would want to hold, take up our problematic mantle if we continue to research into the trivial, to honor horticultural and anti-intellectual accounts of life and education, chatty bull-session classes built around common sensisms and the "Old Wives Tales" of the profession. Nor should we continue with the notion that education is one with child development, the view that educational methods or professional education courses are one with manipulative techniques for classroom teaching, or the belief that *everyone has a philosophy-already* (on this latter point: We confuse ourselves and our students by promoting the notion that everyone has a philosophy and, at the same time, by designating courses "Introduction to Philosophy" and asserting that philosophy began in Greece. Surely they had values and views of the cosmos prior to Greece, but if we hold "values" to be equivalent to *philosophy* then: (1) philosophy becomes one with preference and we can discuss one another's philosophy of cooking bacon and we can pit the philosophy of martini making against the philosophy of income taxes and (2) we fail to distinguish among practices and doings such that both Plato and McCarthy, Aristotle and Willie Sutton, Dewey and Gypsy Rose Lee are philosophers—having, doing or practicing at, among other things, work upon normative problems with the concepts *method*, *meaning* and *value criteria*. Then too, by saying that everyone has a philosophy we say we have no distinctive profession and, in consequence, we assist the group-process-workshop movement and other retreats from reason which are providing the responsible critics of education with such excellent targets.

I've made a proposal to my students on this matter. I've proposed that we *do* retain the notion that *everyone has a philosophy*, but that we do something else, that we coin a new term, *philosophology* (p-h-i-l-o-s-o-p-h-o-l-o-g-y) to designate what it was that *did* begin in Greece, and what it is that *does* distinguish Dewey and Horne from McCarthy and Gypsy Rose Lee. We have then only the problem of naming this society—the Philosophology of Education Society, and other disciplines such as philosophology of art, history, science and politics).

We will pick up the problematic mantle only as significant educational normative problems become our focal concern—only as *method*, *meaning*, *value criteria*, etc., become our basic operational categories and only as significant value cleavages shape our very convention programs and journal contents. If we are to move toward building a responsible and discriminating value-normative intelligence in and throughout the educational enterprise then we must move into discussions on teacher certification into desegregation, into the textbook field, into teacher education programs, into scholarship awards, into foreign policy programs having educational significance, as well as into discussions centering in the methodological status of dualism, teleology and necessary propositions: and we move with the *conceptual tools and skills unique to our discipline.*

Any group coming together as professional philosophers of education should become the most profoundly significant source for building a normative intelligence that education can have. We will assume our responsibilities only as we build our problem areas and go to work in these areas. As we do this we become responsible to and for our culture, and we build a new frontier for American education —the normative frontier.

ORGANIC BIPOLARITY AND THE EDUCATIONAL PROCESS

BY FRANK C. WEGENER

PRESENT CONFLICTING CONCEPTIONS EXISTING IN PHILOSOPHY OF EDUCATION need thorough-going philosophical reconstruction. In formulating the Organic Philosophy of Education, I have endeavored to work toward the resolution of such conflicts of educational theory from principles and postulates grounded in a metaphysical philosophy of organism.[1] One of the essential principles of such a reconstruction is that of Bipolarity. Although in this brief paper we shall be interested in Bipolarity as it pertains to the organic exposition of the educational process, other organic principles of coordinate importance remain to be expounded in other related contexts. It is coherent with other principles of relatedness, togetherness, separableness, creativity, concrescence and the like within a philosophy of organism.[2]

Essentially, as derived from the Platonic tradition, Bipolarity means a "unity of opposites."[3] In Plato's language, it is an answer to the problem of the "one and the many" and avers that the reality of the universe is characterized by both unity and diversity, coordinately, as opposed to a subordination of one to the other. Monists tend to subordinate plurality to the one; pluralists tend to emphasize the principle of diversity at the expense of unity; hence, it is fundamental that in the organic view we see reality and experience in Bipolar terms, or the coordination of the one and the many.

Bipolarity can be defined as a principle which suggests that an organic reality or process is constituted by diverse forces in a unified relation, that such a unity contains the relations of two poles, which exhibit a diversity within a unity; this relationship of diverse poles then contains relations of independence (separable-

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[1]Refers to the manuscript *The Organic Philosophy of Education* formulated by this writer; this paper is excerpted and abstracted from this manuscript.

[2]By "philosophy of organism" I refer to the organic tradition in Western Philosophy as beginning with Plato and Aristotle and culminating in the works of Alfred N. Whitehead.

[3]Although Plato did use the phrase "the union of opposites," we do not here enter into a discussion of whether he was devoted to "Bipolarity" as used in the present context, or whether he was really a "dualist."

ness), dependence (incompleteness *in se*), and interdependence (togetherness), *secundum quid*.[4]

Thus, any field of reality or experience exemplifies the Principle of Bipolarity and includes a unity of opposites and exhibits other related principles of organism. Such a field of Organic Bipolarity is extremely important and significant for it exemplifies the solutions from the organic point of view to some of the greatest problems of philosophy: What is the relation of the one and the many? What is the relation of whole and parts? What are the relations of opposites? What are the relations of various aspects of experience? Is reality dualistic or monistic? Is it to be "bifurcated"? How are metaphysical forces manifested on the operational level? Then, too, the Principle of Bipolarity has extremely important consequences for problems of the educational process.

The Organic Philosophy of Education, like Whitehead's philosophy of organism, inveighs against "dualisms" and "bifurcations" of reality and experience; yet, in the various reactions against dualisms in modern philosophy, another error has been committed: in the effort to achieve unity, the principle of diversity has been overlooked. Organic Bipolarity recognizes the principle of diversity within unity; it recognizes discrete disjunctiveness along with organic conjunctiveness. All of reality is connected, related, and continuous but within this Extensive Continuum there are diverse elements in process.

Organic philosophers since Plato have contended that a Bipolarity of the Male and Female Components on the metaphysical level provides an ontological matrix for the manifestations on the observational level. That is to say, Male and Female Bipolar relations are manifest in biological, psychological, and sociological sciences, as well as in the metaphysical sense. It is clear then that the Male and Female components on either level exemplify the foregoing relationships. Abstractly they represent poles of forces which are *relatively independent* of one another, but not absolutely; they are *dependent* upon their opposite and therefore incomplete *in se*; they are *interdependent* in their existence. In other words, fields of Bipolarity are characterized by unity and diversity; they are in turn reciprocal and complementary.

A moment's reflection reveals many illustrations of Bipolarity on ponderous or simple levels. The blades of a shears function in Bipolarity.[5] The human body, itself, exhibits Bipolar functionalities in the structure of the eyes, ears, lungs, and so forth. Man exhibits an ambivalent nature in his psycho-somatic Bipolarity. Whitehead contends that all entities exhibit a Bipolarity of mental and physical polarities.

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[4]Diverse formulation and interpretations of "Bipolarity," "Polarity," and "Dipolarity," may be found in the different philosophical systems in contemporary writings. A few of the philosophers who have been concerned with this topic explicitly to my knowledge are: Alfred N. Whitehead, William H. Sheldon, Morris Cohen, Archie J. Bahm, Charles Hartshorne, Gustav Mueller, W. M. Urban, Raphael Demos, and Frederick Breed; undoubtedly there are many others whose works are not known to me.

Prof. Archie J. Bahm has stated these polar relations of independence, dependence, and interdependence most clearly in his philosophy of "Organicism." They coincide with my own articulations of these three relations as Separableness, Incompleteness *in se*, and Togetherness. See Archie J. Bahm, *Philosophy, An Introduction* (New York: John Wiley & Sons, Inc., 1953), p. 241.

[5]I am indebted to Prof. Morris Cohen's *Reason and Nature*, for this particular instance of bipolarity.

A WORD OF WARNING

The Principle of Bipolarity does not apply indiscriminately to all dichotomies. It is a profound principle of far reaching significance but it is not meant to resolve all oppositions. One must use the principle within an organic orientation. Further, one must deftly employ a number of criteria. Questions such as the following need to be raised: Are the terms organically related? Do they exhibit separableness, incompleteness *in se*, and togetherness? Are they same and other? Are they of the same classification or category? Are they genuinely reciprocal? Is one a function of the other? Are they a unity of opposites? Are they *not* dualistic? Are they *coordinates*, rather than supra-ordinate and subordinate? Do they exhibit organic unity and diversity? Are they genuinely *Bipolar* rather than *Monopolar*?

Modern educational theory and practice are fraught with conflicting theories of education. They include such familiar conflicts as the following: Conservative versus progressive, formal versus informal, academic versus the life activity concept, subject matter versus the core curriculum, general education versus special education, instruction versus education as discovery and experience. More specifically, there are conflicts between the exponents of education as preparation, growth, development, life experience, unfolding, and formal discipline.

Errors of Monopolarity. We hold that most of the existing philosophies of education are guilty of one-sidedness or what we choose to call monopolarity in contradiction to our Principle of Bipolarity. Monopolarity may be defined as ***subordination*** of all aspects of a given philosophy to one pole; thus it fails to recognize the *coordinate* role of poles which are actually Bipolar in their relationships. The urge toward unity is frequently so great that the Principle of Diversity is overlooked.

COORDINATION NOT SUBORDINATION

Instrumentalism, for example, *subordinates* knowing to action or doing. Dewey's conception of intelligence was rooted in a Bio-Social interpretation. For him, thinking was an affair of action or at least anticipated action. It takes little stretch of the imagination to see the relationship between instrumental methodology and the resulting conception of the educational process. There followed inevitably the revolt against knowing as truth seeking and the subordination of the learning process to action. The "logic of subject matter" gave way to the continunity of life activities and life problems. Systematic teaching gave way to education as a social process. Education as life experience replaced the notion of education as preparation.

The epistemology of instrumentalism inevitably leads to the one-sidedness and the Monopolarity of what we have termed the realm of "ordinary experience."[6] Thus follows the progressive singular emphasis upon the core curriculum, learning through life experiences, functional learning, learning through discovery, and what Dewey has called the "progressive organization of subject matter." The theoretical is subordinated to the practical, the general to the particular, the

[6]For amplification of the relationship between epistemology and educational theory, see my article, "The Problem of Knowledge and Its Consequences for Philosophy of Education," EDUCATIONAL THEORY, April, 1954, Vol. IV, No. 2, pp. 129–138.

rational to the empirical, the logical to the psychological, and the structural to the functional.

I hold no brief for conservatism *per se* either.[7] Conservatives commit the error of Monopolarity, too, by their *subordination* of life problems to the academic, the practical to the theoretical, the psychological to the logical, and the empirical to the rational. Often times they have overlooked completely the important role of prehension, feeling, the emotional, volitional, the intuitive, and the aesthetic educational processes as contrasted with the rational and cognitive.

The organicist seeks to correct these errors through grounding in philosophy of organism and not through expediency of mediation. I reiterate that an organic philosophy does not limit its correction of these errors of Monopolarity to the practical level of expediency. Rather, the differences are to be found in the underlying philosophical presuppositions of these educational philosophies. Conservative idealists, for example, derive their Monopolarity from their theism, their rationalism, and their Absolutism. Progressive pragmatists likewise derive their Monopolarity from their orientations in a bio-social and behavioristic conception of man and culture and a rejection of metaphysical moorings either in substance or the ideal transcendental realm. By the same token, the Organic Philosophy of Education is grounded in a philosophy of organism which has expressed principles in metaphysics, ontology, cosmology, epistemology, and axiology. At this metaphysical level *one of the principles* is that of Biopolarity; hence, at the operational level of the educational process the Bipolar Principle corrects the errors of Monopolarity found in progressive and conservative theories.

THE ORGANIC FIELD OF EXPERIENCE

How then does the Bipolar Principle apply to the educational process? Utilizing the accompanying figure we see these elements: the two poles which may illustrate two hemispheres of experience within the learning process. These poles are considered both conjunctively in their organic togetherness and reci-

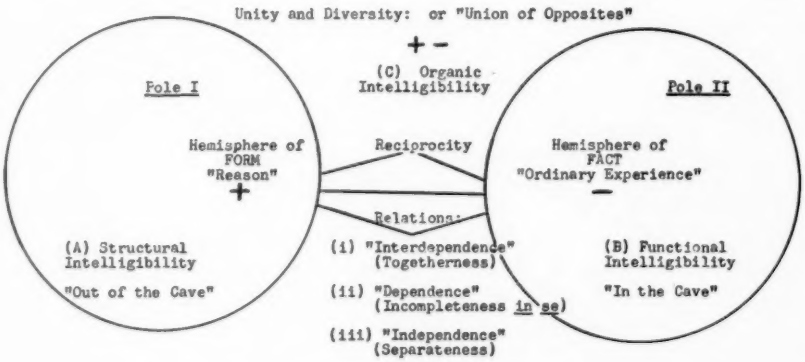

FIGURE: The Organic Field of Experience *Organic Bipolarity*

[7]See my article, "A Proposal . . . The School Within A School," EDUCATIONAL THEORY, Jan., 1953, Vol. III, No. 1, pp. 14–30.

procity, and disjunctively in their organic separableness. In short, they exemplify the three relationships of independence, dependence, and interdependence. There is a wholeness and unity to the total relationship and there is diversity in the Bipolarity.

With this figure in mind we can use the hemispheres to illustrate various bipolar relations. In general, we may say that these various sets of coordinates are corollaries. One must of course not push the corollaries too far; they are complex relationships and can be conceived in many diverse relations. By and large, I think we can portray such coordinates as Reason-Ordinary Experience, Form-Fact, Cognition-Prehension, Logical-Psychological Continuities, Theoretical-Practical Aspects, Structural-Functional Intelligibilities, and the like, as corollaries or parallel constructions. Yet, I would not care to contend that they were not subject to quite different interpretations in varying perspectives.

REASON AND ORDINARY EXPERIENCE

Plato's Parable of the Prisoners of the Cave is very useful in portraying the hemispheres illustrated here as "reason and ordinary experience."[8] You will recall Plato's parable in which the prisoners from time immemorial were found chained to a bench in a cave, gazing at the flickering shadows on the wall; how one was released and taken out of the cave where he experienced the light of reason and was then returned to the confines of the cave where he viewed the perceptions of the shadows with greater intelligence and understanding.

Without trying to discern or defend Plato's metaphysical meanings, let us utilize this brilliant parable as a means of understanding the Bipolar Principle as applied to the educational process.

The Organic Philosophy of Education sees the educational process as a dynamic and complex *interweaving* of bipolar elements in the totality of experience and learning. Essentially, the educational process involves the interweaving of such bipolarities as the Logical-Psychological, Structural-Functional, Cognitive-Prehensive, Theoretic-Aesthetic, Formal-Informal, Mental-Physical, Objective-Subjective, Speculative-Experiential, etc. In short, education does not properly confine itself to that pole which is characterized by the intellectual, logical, academic, structural, cognitive, theoretic, or abstract. Neither does it properly devote itself to the pole which is characterized by ordinary life experience, the psychological, the emergent, the functional, the practical, the concrete, or the subjective. Like the strands of a rope, organic education insists upon a constant *interweaving* of these bipolar elements. As such, they are unifications of the diverse, they are unities of opposites; the separate strands are thereby complementary, reinforcing, and reciprocal. One strand is not *subordinated* to the other as in monopolarity, but the strands as variously conceived are *coordinate*.

Metaphorically speaking, then, we find the learner in the cave. Here he has what educators call "ordinary life experiences." They are directly felt; they are immediate experiences as opposed to vicarious learning. One learns in the cave through actual experience. Such experiences may be mainly characterized as immediate, emotional, sensual, volitional, sensible, and even physical—or, in a

[8]Plato's *Republic*, Bk. VII.

word, prehensive.[9] They are incidentally intellectual. They incorporate the continuities of the daily life activities. They do involve learning through trial and error, reconstruction of experience, and purposeful problem solving. There is an emergent *ad hoc* quality to the learning.

The necessity of learnings in this hemisphere are by no means denied. They are the prehensive learnings in direct affiliation with actual entities in time and space. The learnings are shot through with the aesthetic aspects of life. Yet they are incomplete and fragmentary. They require the complementary and reciprocal learnings to be derived from the hemisphere of reason and of form if we are to achieve total learning. It is here that the teacher leads the learner out of the cave into the light of reason—the realm of Whitehead's Eternal Forms—[10] or what Santayana calls the realm of the Essences.

Like the prisoner of the cave, the learner is led out of the realm of immediate and fragmentary experiences into the realm of reason and form. Here we find the whole-part structural intelligibilities and the frameworks of science, philosophy and the logic of subject matters.

PRINCIPLE OF REVERSIBILITY[11]

In describing the educational process organically, I have formulated what I term the principle of Reversibility, and to my knowledge it is not explicitly stated in other theories of education. Reversibility is a direct corollary and outgrowth of the Bipolar conception of education. It holds that the educational process is characterized by the reversibility of Coordinate Principles—namely such as Objectification-Subjectification, Structuralization-Functionalization, Externalization-Internalization, Abstraction-Concrescence, Deduction-Induction, and Generalization-Individuation. In terms of the Parable of the Cave, the educational process is characterized by a sustained and deliberate interweaving of these coordinate principles.

As the teacher guides the educational process from the immediate experiences "in the cave" into sustained experiences "outside of the cave," there is emphasis upon the processes of Objectification, Structuralization, Externalization, Generalization, and the like. In brief, the fragmentary is organized, the *ad hoc* becomes systematic, the perceptual becomes conceptualized, and the subjective becomes objectified. Personal experiences in the continuity of ordinary life experiences are extended into the impersonal for the moment.

Following the intellectualized experiences out of the cave, the teacher leads the learner back into the cave. The Coordinates, to be reciprocal and organic, must be interwoven. Hence, there is concentration upon the processes of Subjectification, Functionalization, Particularization, Internalization, Deduction, and Concrescence. There is a deliberate effort to assist the ingression of the abstract forms into the actual embodiment of the process of concrescence.

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[9]It must be recalled that Whitehead holds there are both physical and conceptual prehensions.

[10]Whitehead distinguishes the "eternal objects" as "forms of definiteness" or "possibles" or "ideal potentials."

[11]By Reversibility I mean to suggest that in the teaching-learning process the teacher should see that the subjective understandings of the learner should become objectified and then again reversed; internal prehensions should be externalized and then reversed; the particular should be generalized concretely in a process of concrescence.

STRUCTURAL AND FUNCTIONAL INTELLIGIBILITIES

In one sense, education is largely a process of interweaving bipolar elements. Outstanding among these diverse elements are Structural and Functional Intelligibilities. I have defined Structural Intelligibility as abstract or theoretical intelligibility; the comprehensibility of an entity or event in its formal aspects; or simply the intelligibility of theory and form; the knowability of a thing intrinsically; contrasted with "functional intelligibility." For example, the intelligibility of pure mathematics or music theory as contrasted with applied mathematics or applied music. It is synonymous with the formal understanding.

The related coordinate is Functional Intelligibility which I define as: operational intelligibility; understandability of a process or operation; knowledge in terms of "know-how"; contrasted with "structural intelligibility." For example, the knowledge of how to build a house; synonymous with art and creative intelligence.

Again these coordinates are only partly separable and independent, for they possess organic togetherness and interdependence. In short, one implies the other to some degree. When these are interwoven in the educational process they give rise to Organic Intelligibility which we have defined as: the total comprehensibility of any significant unity of reality or experience which embraces both structural and functional intelligibilities. In short, a successful interweaving of the intelligibilities in the hemisphere of knowledge and the hemisphere of doing or creating or art results in the total organic product of learning.

LOGICAL-PSYCHOLOGICAL CONTINUITIES

A corollary of the Structural-Functional Coordinates is that of the Logical-Psychological set of coordinates. Now my meaning of Logical Order as contrasted with certain progressive concepts of order is defined as follows: That order in the teaching-learning process which is determined largely by the analysis of subject matter; *that order which is objectively determined as opposed to psychologically determined.* The temporal sequence of history, for example, or the conceptual orders of mathematics are illustrative cases of Logical Order. Logical continuity, then, represents one of the two coordinates in the educational process.

By Psychological Order, I mean that order in the teaching-learning process which is determined largely by psychological considerations; that order derived from subjective considerations, or considerations for the growth and development of the individual; contrasted with Logical Order. For example, orders determined by readiness, interest, effort, maturational level, experience, purpose and the like are 'psychological.' The 'psychological' order is largely an experiential order—the emergent order of doing or making or of 'ordinary living.'

The Logical-Psychological Continuities are *coordinates* and therefore should not be *subordinated* to one another. However, conservative theories appear to commit the error of monopolarity by subordinating the psychological to the logical; progressive theories tend to commit the error of monopolarity by subordinating logical orders to the psychological pole. Our organic view seeks to avoid these errors by recognition of the bipolar character of the educational process in its diverse modes of expression.

THE FUNCTION OF SOCRATES' EDUCATIONAL METHOD

BY ARTHUR LAPAN

IT IS GENERALLY RECOGNIZED THAT IT IS IMPORTANT TO SEE THE DIALOGUES in the context of Greek society of the time. This was like our own in that it was torn by conflicts between city-states and between the different classes of Greece. Also, just as among us, the traditional religions have weakened, so among them, the old mythology had broken down. Doubt was widespread, radical doubt, witness the Sophists. Such doubt concerned not only the Gods but values as well, and of course, with time, extended to other matters. Mores, per se, no longer seemed believable to many.

Socrates and Plato were primarily interested in the reformation of the city. As is so often the case, situations of this sort threw men on themselves and led them to the realization that the cause of chaos and disorganization was in themselves. This was Socrates' opinion. In short, it was lack of wisdom, of temperance, of justice and of worth which was responsible for the plight of the Greek city. If only we could understand ourselves, reformation would be the result. Reformation was, for Socrates, founded on self-knowledge. Herein lies a theory of education, the Socratic theory of education.

The way of self-knowledge was for Socrates through philosophy. The dialogues illustrate this way. They also illustrate the Socratic theory of education. What was this implicit theory of education?

To begin with, education was for Socrates in part *unlearning*. It is a way of divesting oneself of limited notions, of seeing their inadequacies and inconsistencies. A central point in it is doubt. The Socratic method does not eliminate the spirit of the Sophists. The spirit and attitude of the Sophists are present in him, conserved and operative but, of course, transcended.

Education is most always unlearning wherever its object is self-knowledge. This is because self-knowledge is usually sought for precisely the reasons Socrates sought it, as a solution to troubles felt to have their origin in ourselves. Once this origin in ourselves is identified, we seek to change it and replace it with new habits, orientations or institutions. But this is precisely a process of unlearning because the old habits and ideas were themselves learned. Self-knowledge is therefore learning about the things we have already come to learn and, where changes are required, unlearning what we have learned. So it is with religious or social scrutinies of ourselves. We stress humility and repentance so that we can recognize and put away the current and inadequate. In social affairs, we sometimes recommend alterations of procedures which in times past were worked out to master then existing pressures.

It is also clear that Socrates himself went through the process of unlearning integral to any movement toward self-knowledge. His professed 'ignorance' is

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a form of this. Therefore Socrates identifies himself with the learner in the dialogues and participates in the educational process, or I should say, in the process of inquiry, since that is what the educational process is in the dialogues.

Education is also a way of examining these partial, customary and limited notions which, with Socrates, we come to unlearn. The way, of course, is by considering their implications, and frequently by considering whether they square with 'facts'. In the consideration or implications the question of consistency was for Socrates crucial. Thus the educational process is for him a logical process. One product of it is the intellectual disorganization and unlearning of previously held beliefs, the limited and partial ones. Doubt, here, was regarded as being creative.

SELF-KNOWLEDGE BY ELICITATION

Further, the educational process as we find it in the dialogues is a process of elecitation. It is not a matter of presenting or imposing material foreign to the learner. If it were, it would not be self-knowledge, and this must be emphasized. On the contrary, Socrates elicits inconsistencies present in the ideas of the learner. These inconsistencies are taken to be implicit in the statements of the learner. The skill of Socrates as a midwife consists in bringing the learner to a recognition of these inconsistencies, in making the implicit explicit. The inner becomes public through a logical process and is recognized.

As a result of the spirit and object of his method, we may say that the 'learner' is, throughout the dialogues, a subject. At every point Socrates effaces himself. In the dialogues this follows directly from making the 'learner's' knowledge of his own self the paramount object. He does not teach in the traditional way but works in and through the subject. It is the subject who does the actual unlearning and learning, recognizing, drawing of consequences, and who is the active and moving agent in all this.

The tools of the educational process are questions, deduction or logic as already said and, under the deductive form, contradiction. Only because it is a process of self-knowledge, what we get is not merely contradiction but self-contradiction.

Because only the consistent is true, what we come to know is the universal. Knowledge of the self is knowledge of the universal. The subject, through appropriate questions, comes to a recognition of the contradictions implicit in his ideas and because of these he is led to relinquish them. But these contradictions are precisely of the partial and limited beliefs. The only thing which is consistent is the universal. Hence the dialectical process impels one to the universal.

As remarked previously, the educational process is for Socrates an intellectual or rational process and the universal is something grasped with the mind. Other types of movements toward self-knowledge as, for example, the religious, also involve universalization but for them universalization is not predominately intellectual. In the prophets and in the Jewish and Christian traditions generally, grasp of universality is achieved through experience, and particularly through suffering, and not as in Socrates through impersonal detachment and dialectic.

It is interesting to note, also, that the doctrine of reminiscence is implicit in Socrates' entire educational procedure and is a consequence of it. Of course this means that the universals were present in the subject from the very beginning.

It may also be said in passing that the form of the dialogues is through and through consistent with his conception of and method of education. The two are inseparable. This becomes more and more apparent as one understands the conception. The well-known Socratic irony is also implicit in it.

Of course, the educational process is, for Socrates, also a moral and contemplative process. It is a moral process because for him self-knowledge is knowledge of the good. Here, again, we get the emphasis of the Sophists and its transformation. Man *is* the measure but man's knowledge of himself does not lead him to what is relative, many and contradictory, but to what is one, universal and self-consistent or harmonious. Temperance, justice and wisdom are rational and universal.

What Socrates is saying is that it is only reason and universality that can furnish the basis of a united community in Greece. The differences and conflicts of cities and classes are due to differences in habits and interests. What is required is an inquiry into the reasons for these partial notions and we will be impelled toward what is common. Socrates is saying that the substitution of a rational community for a community based upon unexamined habits and sensory desires would be the ground of an harmonious Greece.

Reason had been the keynote of Greek thought generally. In Socrates it shifted, of course, from rational inquiry into nature to rational inquiry into ourselves. But this is precisely what self-knowledge is, rational inquiry into ourselves together with the resulting apprehension of the *reasons* for such-and-such being just or temperate or worthy. A rational and harmonious community is therefore the product of self-knowledge.

It is perhaps important to recognize that the doubt we encounter among the Sophists, and indeed in Socrates himself, is not to be regarded as the absolute antithesis of universality. The doubt of the Sophists is a rational doubt. They did not prefer one traditional belief to another because they saw no *reason* for so doing. One custom was as good as another, one interest as acceptable as the next.[1] But the emphasis on the differences in traditional beliefs, and particularly on their contradictions, had the effect of undermining the authority of tradition generally. Once this had happened, and given the rational predisposition of Greek thought, we are on the way to the universal. For if a rational ground for values be sought, it can be found, if found it be at all, only in what is universal.

For Socrates, as for all the Greeks, knowledge is also contemplative. We see the universals with the eyes of the mind. But such seeing of their structure purges and transforms us. The universals are, of course, immutable and pure, unchanging and immaterial. Education thus leads us to an eternal realm. It is a realm of mind and a realm of beauty. Education is a mystical process with all that that implies.

THE FUNCTION OF THE ACADEMY IN THE GREEK WORLD

Needless to say, self-knowledge is for Socrates the true and enduring pillar of the state precisely because it does transform us and lead us to the good and the eternal. Education is his response to the disorganization of Greek society

[1] In Protagoras this went so far that he is credited with saying that contradictory statements are equally true.

where education is taken, not in the sense of the mechanical transmission of finished material, but as the living process exemplified in the dialogues.

And that takes us directly to the Academy. Because of Socrates' views of the function and character of education, Plato thought[2] he could best influence his world, not by direct political action but by teaching others how to think and act. Plato thought his greatest contribution was to be made through his Academy; for one of the major functions of the Academy, if not its principal purpose in Plato's eyes, was the training of statesmen, or legislative advisors. Some fifteen or twenty persons are named by various ancient writers as members of the Academy during Plato's lifetime who went to one city or another as legislators or legislative consultants. How did the Academy prepare its members for these essays in legislation and constitution making? By the study of mathematics and dialectics, of course—for the statesman must first of all be a philosopher; but also, it seems clear, by the study of Greek law and politics. It is too often overlooked that in the Republic the education of the philosopher-kings includes more than the abstract sciences. Plato prescribes fifteen years of mathematics and dialectic, followed by fifteen years of service in subordinate administrative posts, before the candidate for guardianship is completely trained. The Academy was not a polis and could not offer its students the advantages of actual experience in office; but it could encourage them to gain a wide knowledge of the history and character of actual states. This it almost certainly did, for Plato's interests and inquiries would establish a norm for the others. Aristotle, the greatest of these other members, was himself a master of empirical inquiry in politics; the foundations of this mastery must have been laid, and the impulse to attain it acquired, during his twenty-year residence in the Academy. These are familiar facts but I mention them because I believe we have seldom taken them in their full significance. Legislation, for Plato, was not a by-product of the full life, but its crown and consummation.

The establishment of colonies alone might present a member of the Academy with a situation in which he, and philosophy, might play a part. The establishment of colonies was a habit of long standing with the Greeks, less evident in the fourth century than it had been in the earlier days, but still regarded as the best way to deal with a surplus population or with a discordant faction in a city; and a new and greater era of Greek colonization was to open up soon after Plato's death with the conquests of Alexander. Such colonies always started their political life with a set of laws especially designed for them, and a competent legislator was often called upon to advise the founder, or the sponsoring city, in the task of legislation. The great Protagoras was asked to draw up the laws for Pericles' colony of Thurii in southern Italy. Plato himself, according to one tradition, was invited to legislate for the new city of Megalopolis in Arcadia set up after the defeat of the Spartans at Leuctra. We see therefore that such a situation might confront a member of the Academy at any time. This was certainly one way in which philosophy could and did play a part in fourth-century Greek politics.

Once the function of the Academy is comprehended, it seems to me that its actual work constitutes the best test of Socrates' response to the challenge of the

(*Continued on page 159*)

[2]See for this and the next paragraph Glenn R. Morrow, "The Demiurge in Politics: The *Timaeus* and the *Laws*," in the *Proceedings and Addresses of The American Philosophical Association*, November, 1954, pp. 5–23 and particularly pp. 9 and 13.

SCIENCE, HISTORY AND A FRENCH REVOLUTION (AN INTELLECTUAL REVOLUTION AT THE SORBONNE)

BY LOTHAR KAHN

AT THE TURN OF THE 20TH CENTURY THERE OCCURRED IN FRENCH UNIVERSITIES a major revolution which changed perceptibly the content, purposes and approaches of higher education. While all fields were affected by this revolution, the human and moral sciences were involved to a greater degree than other disciplines. Before discussing these sweeping changes themselves, it is necessary to summarize briefly the conditions and factors leading up to them.

Beginning with the establishment of the Faculties by Napoleon and throughout the remainder of the nineteenth century, the cry for reorganizing the French university was voiced with increasing vigor. Compared to German institutions of higher learning—"those houses of science" as Taine and Renan admiringly called them—French universities appeared weak in organization, spirit and methodology. Frequently the professor deemed it his main function to amuse and entertain at the "cours public" and relegated the progress of his regular students or the pursuit of scientific research to a secondary rank. The professor's displays of brilliance and rhetorical skill were sometimes the primary goals of these courses. It is hardly surprising, therefore, that the completion of studies at one of the special schools, the *Ecole Polytechnique* or the *Ecole Normale*, carried greater prestige than a brilliant doctoral dissertation under Sorbonne auspices.

Perhaps the leading spokesman against this emphasis on rhetoric skill as opposed to solid, scientific scholarship was the critic and historian, Ernest Renan. In his *Contemporary Questions* he complained vigorously:

> In the intellectual realm France is facing the danger of becoming a nation of talkers and writers who show little concern for the substance of things or the genuine progress of knowledge. The institution to which France has entrusted the training of her secondary and university teachers, the *Ecole Normale*, has been—especially in literature—a school of style and not one in which one learns substance. It has produced exquisite political commentators, delightful novelists . . . everything, in short, but men having a sound knowledge of languages and literatures.[1]

In spite of these and other protests—all quite vehement—action was slow in coming. In fact, it took the military debacle of 1870 to provide the impetus for educational reform. While it was elementary education which reaped the immediate benefits of the saying that "the Prussian schoolmaster had won the war," other levels were likewise affected. In the secondary schools, some of the more traditional and sterile exercises, such as Latin composition, were now eliminated.

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[1]E. Renan, *Questions contemporaines* (Paris: Calman-Levy, 1886), p. 100. The translation is my own.

Higher education, last to feel the impact of the war, was perhaps changed the most.[2]

"THE SPIRIT OF THE NEW SORBONNE"

Partly because of this association of the German kind of education with national strength and partly because the Faculties, poverty-stricken, had fallen to a new low in public esteem, the year 1896 saw at last the reunification of Faculties into Universities. With this step and the growing republican, democratic sentiment engendered by the Dreyfus Case, there came into being a distinctly new spirit. Characterized by a common scientific and historical orientation, this new spirit has often been referred to, especially by its enemies, as "The Spirit of the New Sorbonne."

A group of outstanding Sorbonne teachers seemed mainly responsible for the acceptance and spread of the new ideas. The most distinguished were the Croiset Brothers in ancient studies, Durkheim in Sociology, Langlois, Seignobos and, to a lesser extent Aulard in history, and Lanson in modern literature.[3] One may justifiably wonder how the Sorbonne, so weakly and loosely organized throughout the nineteenth century and so disunited in spirit, suddenly achieved, through a scientific-historical approach, an almost perfect harmony in philosophy and method. It is equally remarkable that it succeeded so admirably in impregnating much of French higher education with the same unity of outlook. Such enemies of the scientific scholarship as Charles Péguy and Pierre Lasserre—both apologists of the humanistic, "rich-in-ideas" school—usually attacked these professors as a group, attesting further to the unified nature of the movement.

In seeking to explain the particular direction of the revolution, Pierre Leguay, a moderate critic of the changes, has submitted a rather acceptable explanation. He states that the professors involved were motivated by the dominant consideration of how to adapt French higher education to the needs of a growing liberal democracy. In this belief, he is solidly backed up by one of the prime movers of the revolt, the noted historian Seignobos:

> One can hardly expect that a democratic society, out of sheer traditionalism, would support a system of higher education which would appear not to serve any useful purpose. It is, therefore, a vital question for the future of our institutions to discover what purposes the study and teaching of the sciences of Man can achieve.[4]

If the new democracy demanded a utilitarian objective in education, one may well wonder why historical and philological erudition should have been selected above other genres of study to meet that need. On the surface, at least, this type of scholarship seems in many ways further removed from the utilitarian and practical than many other forms of University activity. Why, in letters, should it be selected above a rhetorical or esthetic approach? Why, in history, should painstakingly exact attention to the documents of the past and their

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[2]Using the pen-name of Agathon, Henri Massis and Alfred de Tarde, the violent enemies of University Reform, questioned the reasoning underlying the emulation of German models: "No one questioned the widely held belief that, since destiny had favored German arms, it was the superiority of their culture, their education, their genius even, which had triumphed over our ways. And thus Germanic philology came to be considered a source of national strength." Agathon, *L'Esprit de la Nouvelle Sorbonne* (Paris: Mercure de France, 1911), p. 12.

[3]See below for a brief comment on the effect of these men upon the philosophy and methodology in their fields.

[4]Charles Seignobos, *Le Regime de l'enseignement superieur des lettres*, p. 6.

careful, rigidly objective interpretation replace the seemingly more useful, and vastly more interesting theories which would leave a much more lasting effect upon the public mind?

The then popular belief, commented upon by Leguay, that science and democracy are one, affords a possible answer. If science is so closely allied with democracy—a hypothesis then frequently accepted as demonstrated fact—then, in order to become likewise equated with democracy, other studies must become as like the sciences as possible. In the search for the human study which would most aptly fill this need, history, the least variable and most verifiable, was selected as the discipline after which to model the others.

Further, the tremendous scientific optimism of the latter half of the nineteenth century had led many people to believe that the same method which had proven so very successful in the physical and natural sciences, might bring equally great benefits to the non-physical studies. This scientific method meant a new way of searching for the truth, a new way for establishing fact. Very obviously, however, the non-physical fields did not lend themselves to exactly the same processes as the physical, more readily controllable, studies and experiments. A method meriting the designation "scientific" was needed, one which would have as many elements in common with the scientific method of the physical sciences as possible. New techniques in historical research offered substantial promise of supplying such a "scientific" method for the humanities. For history was no longer what it had been in the earlier decades of the century; it was no longer exciting story-telling of past events, no longer beautiful and flamboyant theories which had more brilliance and genius than substantiation in fact. Nor was it any longer the convenient selecting of partial evidence to fit preconceived ideas. Renan, Fustel de Coulanges, Gabriel Monod and various historians in Germany had given to history a solid foundation of fact through archeology, anthropology and a new approach to the historical document. Langlois and Seignobos, more recently, had devised a set of procedures which safeguarded the document from becoming the victim of human passions. Of all the non-physical sciences, history had made the greatest strides in systematically establishing ways and procedures for determining the truth. Thus, it was the new historical approach in a non-physical study which most approximated that of the exact sciences.

In a democratic society, the historical method can serve the function of helping the citizen make his decisions more intelligently, not directly, but indirectly through the scholar. The latter plays a dual role in this process: first, he establishes facts through the application of the method and, secondly, he publishes the facts and makes them available to the citizenry. To many professors of the Sorbonne—several of them members of the democratic League of the Rights of Men—gearing the educational machine to democracy meant educating citizens for self-government.

It was, therefore, primarily a utilitarianism in terms of democratic citizenship that the Sorbonne sought to further through the adoption of an historic-scientific method. While this conception was elastic enough to include preparation for the earning of a livelihood, the application of the new Sorbonne method was only indirectly aimed at that purpose.

THE LEADERS OF THE 'REVOLUTION' AND THEIR OPPONENTS

This scientific invasion of the reunified Sorbonne occurred under the general-

ship of a few men, already mentioned, who materially revamped the curriculum. Thus, under Emile Durkheim's leadership, metaphysics was considerably weakened in the philosophy program and sociology, which had developed rapidly under the aegis of Positivism, now quickly replaced the older study. The Croiset brothers infused into their presentation of Athenian democracy the spirit of objective analysis which contrasted sharply with earlier treatments of the same problem. In medieval studies, the internationally known Joseph Bédier, of the Collége de France, was confining himself, on the main, to the use of objective methods as he sought to restore or interpret long ignored or apocryphal texts. Mention has already been made of Charles Langlois and Ernest Seignobos whose text *Introduction to Historical Studies* has become a classic in historiography, having influenced methodology over several decades. These historians were seconded by Professor Aulard who searched for the facts pertaining to the French Revolution. In Germanic studies, the task of carrying the scientific-historical banner fell upon the shoulders of the Socialist professor, Charles Andler. Perhaps the most sweeping change in the direction of fact-finding was in modern French literature where Gustave Lanson had grouped about him a host of disciples, eager to go out and spread the gospel of literary history, a sharply defined new discipline. In the light of our earlier discussion, it is significant to remember that all of these men, (with the exception of Joseph Bédier who had no strong political leanings) were highly active men of the democratic left, eager to lead their study out of the Ivory Tower and enlist it in the service of Truth.

The opponents of the scientific-historical method, mostly ardent nationalists and many of them collaborators of the royalist *Action Française*, were at first stunned by the far-reaching philosophic and curricular changes. But not for long. Within less than a decade they raised their voices, loudly and accusingly. The French humanistic heritage had been lost; non-historical subject-matter was being made historical; where were the broad general ideas that had characterized French intellectual genius? What had become of French stylistic charm and talent, in fact, of the French language itself? These limited findings of the "pseudo-scientists" did not have the certainty they claimed for themselves and who, at any rate, was interested in such small, minute detail? In human studies, neither detail-mongering nor scientific methods had a legitimate place. With increasing vigor the reaction to the revolution made itself known.

In their desire to adapt French education to the needs of the new democracy which had evolved from the Dreyfus Case, the Sorbonne educational revolutionaries had much in common with American educational thinkers of the same period, grappling with problems which, at least on the surface, were closely similar. In fact, as one peruses the more general writings of these men—especially Gustave Lanson—one is struck by the kinship of tone and spirit with John Dewey at the turn of the century, a man of whom he had then probably never heard. For the student in the history of education, there resides in this kinship, not a factor of influence, but certainly an interesting simultaneity.

Today some of the erstwhile scientific optimism has vanished and, with that fact, the new scholarship of 1900 has been somewhat deglamorized if not actually outmoded. Yet it prevails to this day in many fields at various universities. And where it has lost its former dominant position, it is still likely present, in modified form, or integrated and fused with the more traditional humanistic

(*Continued on page 149*)

THE USES OF LITERATURE

BY MAXINE GREENE

THE SUBJECT MATTER OF PHILOSOPHY AND EDUCATION IS THE STUFF OF EXPERIENCE. But what a hugely varied manifold this is! In a changing culture like our own, it is shaped by innumerable forces, conditioned by multiple perspectives. Traditions, preconceptions work in it; concrete sensation and activity structure it; communication gives color and meaning; the deep energies of the unconscious twist and mold it unceasingly.

For all this complexity, it remains philosophy's obligation, if philosophy is not to take refuge in the supernal, to find in the intricate and shifting pattern a direction, a resolution of the conflicts that inevitably arise. It is education's responsibility, if education is to be founded in actual life, to make possible the continuity of cultural experience, to transmit the significant and the valuable. Clearly, both endeavors are interdependent; and the philosophy of education has become a process of determining what is significant and what is valuable at particular cultural moments, of devoting its resources of criticism and synthesis to that end.

Our strange and urgent discipline is compelled, therefore, to use multiple resources in the definition of its normatives, in discovering what is relevant to the needs of man and the meanings of a culture. The natural and social sciences, experimental inquiry and control, are the starting point, the underpinning of vision and speculation. Without them, the philosophic mind tends to lose its moorings to the earth. But even these are not sufficient for the tracing out of the complicated fabric of human experience at a specific place and time in human history.

The philosopher of education, too often a disembodied mind, must look into himself and his relationships in order to feel the tang of man's striving. He must cultivate a sensitivity to what people do and what they think, if he is to project what they ought to do and what they ought to think. He must know what preoccupies them, what haunts them at night, what felt conflicts agitate them. Not knowing, his expressed concern for experience becomes nothing more than the contemplation of a new set of abstractions, since subject matter viewed from afar becomes frozen and dehumanized.

It is for these reasons that imaginative literature ought to become a resource for the philosopher of education. He will be ready to admit that literature deals, above all, with the social experience of men, with human beings living in relation and seeking value. The men who create literature are social beings, even the delicate and precious ones. They are sensitized and articulate members of the culture who cannot help but set down meanings as they see and feel them, who cannot help but interpret the social world around them by means of the symbols implicit in cultural life. Accomplishing this, they provide pictures of human experience, versions, surely, but in some manner relevant because shaped by the

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responses of living men. We have learned enough to know that all of us are inextricably involved in the symbolic atmosphere of a culture, scientists, artists, bricklayers alike; and we cannot, therefore, dispose of what used to be called "subjective" interpretations. We know, too, that knowing cannot simply be understood as an affair of reason. We can no longer ignore the knowledge that emerges when feeling and impulse interweave the processes of reflective thought.

Imaginative literature, therefore, should be utilized for what it is, the expression by men of varying social perspectives of their experience of life. No one book, no one man, of course, may be selected as the bearer of the "truth". It will always be necessary to probe many works, the expressions of many men, to compare them and view them in context, to take into account variety of point of vantage and, at once, distill the common meanings. But these are not difficult tasks for an individual whose business it is to explore and speculate and mold a vision; and, when they are done, a rich resource for the understanding of contemporary experience will open before his eyes.

PROGRESSIVE IDEAS A RESPONSE TO SOMETHING IN THE HEARTS OF MEN

In retrospect, it seems a simple matter to decide what was significant and valuable in the past, to determine what education should have transmitted at various moments in history. Incorrigible pragmatists that most of us are, we judge by what turned out to be worthwhile in terms of our current standards of belief. Most of us, for example, are convinced that the progressive concern for the individual child and for his liberation from external controls was valid in the United States a half century ago because it answered a clearly defined need, because it evoked a wide response and was incorporated into educational practice. After all, we tell each other, Dewey, Meriam, Hall, Kilpatrick, and the others *did* provide for the greater welfare of the individual child, *did* make possible a richer development for each small human being, *did* enable the intelligence, at last, to have full play, did supply the clue to a mass education which could be democratic at the same time.

But why did the progressive idea take hold to the extent it did?[1] Not solely because it was psychologically and sociologically sound. Only a minority are equipped to determine such validity; people make their choices in other ways. It would appear that the new attitude towards education took hold, also, because it connected at many points with cultural experience at the moment, with current preoccupations, aspirations—because it seemed to provide an "answer" to questions of widespread significance. Using hindsight, we can validate this observation by what we now know of the moods at the time, by what we know of economic stress and change, of proposals for social and political reform, of organizational movements and election results. But we can secure the sharpest awareness of what was in the people's hearts and minds by turning to their literature.

"Off with the fetters that chafe and restrain," sang Richard Hovey and Bliss Carman in *Songs from Vagabondia* at the century's turn, even as Markham's man with the hoe stood up against the sky with his demand for regard. At the same

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[1] "So faithfully did Dewey live up to his own philosophical creed that he became the guide, the mentor, and the conscience of the American people; and it is scarcely an exaggeration to say that for a generation no major issue was clarified until Dewey had spoken." Henry Steele Commager in *The American Mind*, Yale University Press, page 100.

moment, Dreiser was publishing *Sister Carrie*; and, suppressed though it was, this work, too, represented a challenge to the restrictions of an archaic point of view. Frank Norris's *The Pit* and Upton Sinclair's *The Jungle* joined the chorus of social indictment, the demand that attention be paid to the individual oppressed; even Edith Wharton, "society novelist" that she was, was striking out against artificial convention, insisting on the moral crisis facing man. Returning to these writers, we cannot help but feel the profound concern for the plight of the individual, the longing for democratic social arrangements, the quest for moral reevaluation. We know that these people were not mavericks, that hosts of lesser writers were expressing responses akin to theirs; and we can, therefore, assume that these preoccupations were at least present in cultural experience at the time. Recognizing this, we find it easier to comprehend how the "new education", which was another aspect of the same concerns, gripped the imagination of so many people and began, sometimes invisibly, to alter the face of American schools.

For another example of the relevance of imaginative literature to philosophy of education, we may turn to the 1930s, the depression years, when schoolmen throughout the country were associating education with social reform. Attention was shifting from individual to group; complaints were being voiced against emphasis on individual need and individual purpose. The values associated with citizenship and relationship emerged as most significant; there was, moreover, a new interest in planning and design. It is hardly necessary to point to the social context of such preoccupations, to the New Deal attitudes, to the recognition that individualism had come near destroying itself. What is relevant to the present argument is, again, the tenor of imaginative writing at the time, since, once more, the tone of cultural experience can best be heard in such work.

"The people so often sleepy, weary, enigmatic, is a vast huddle with many units," wrote Carl Sandburg in *The People, Yes*; and poem after poem, novel after novel appeared with a similar concern for masses in motion, rather than for individuals in quest. We recall James T. Farrell and *Studs Lonigan* with its emphasis on environment, family, social group. We may reread Dos Passos' *U.S.A.* and watch once more the unfolding panorama of a society in flux, the biographies of characters who are representative of groups, whose destinies are endlessly intertwined. We may turn, in a kind of climax, to Steinbeck's *The Grapes of Wrath* for the sense of people moving together towards a golden gate, of individuals moving en masse and of the integrity of human beings recognizing their need for one another. Surely, the educators' resurgent interest in group and project and membership was deeply founded. We can see in our literature that individuality was being redefined in the very hearts of men; and we may speculate that, at such a time, a theory of education which did not respond would be barren and ineffectual.

FROM WHENCE COMES THE NEW PROGRESSIVISM?

The correspondences, then, come clear in retrospect, as long as we see contextually and avoid the arid search for causes and effects. Our problem today is to continue to see contextually, to recognize the integration in the pattern of our culture and to explore connections for the sake of our individual strength. We break down the walls, we increase our awareness to the extent that we look

outside our special discipline and consult as many materials as possible in order to assess the quality of experience in our time.

We know, or think we know, what is required in education from a scientific point of view. We know what is practically possible. We have developed acute instruments for the criticism of alternative points of view; but, in this time of orthodoxy and controversy, we are not so well equipped to measure the actual concerns of men. The very fact that so much heated argument is proceeding around the condition of education signifies that this is a moment of philosophic crisis, a moment that demands the examination of premises, the refining of our vision.

Faced with talk of the "wastelands" and "quackery" in our schools, too many of us respond with scorn or petulance or the "logical" unmasking of archaic attitudes. Too many of us cling to the generalizations of a time gone by and mouth them as if they were shibboleths. Too few of us shoulder our major responsibility, which is the definition of the significant and valuable, the charting of a road ahead. This does not by any means imply that we can surrender what we have gained; and what we have truly won is already implanted in cultural experience, "built in", as Kilpatrick used to say, built into the very character of our social response. It is extremely unlikely, for instance, that any honest, thoughtful person will propose a return to the rigid, heartless classroom procedures of days gone by. Even the severest critics of the progressive way, the Lynds and Bestors and Smiths, take for granted now the values of humaneness in teaching, the necessity to consult the sciences for understanding of learning theory and child development, the relationship of school life to democratic experience.

But this is not enough. We are only too aware that criticisms of educational practice continue apace; we cannot help but feel the fear of those who wish to limit academic freedoms; we cannot help but react to the passions of those who work desperately against secularism in the schools. We have only to see the spectacle of individuals with the most barren memories of formal education rising to demand hickory stick and report card for their own children; and we are reminded again that this is a troubled time. It is a period which should challenge us to new definitions, to new assessments. But our philosophic resolutions will only be meaningful if they are relevant to contemporary experience.

We must use every means to discover what that experience is, what preoccupations prevail, what questions gnaw at human minds. Perhaps this is more necessary than ever before, because, with the growth of mass communications, it is so easy to be deceived. The culture presents a certain face to itself by means of television, advertisement, the press; and it is tempting to accept the ad agency meanings and deal with them as truths. We must, however, penetrate the glossy surface and recognize that this is a fabricated version, the product of wishful thinking or, at worst, what the market seems to demand. For a revelation of the secret places, the critical concerns, we must look for the spontaneous response, the response of art.

We are told, significantly, that the novel of our time does not express our time. Critics on every side complain that imaginative writing has lost its roots in society; and it is true that there is a sense of alienation in our literature. We find, too, a concentration on violence that is often shocking, a scene of decadence that is utterly sad. But what could be of greater interest to the philosopher of education in his unending search for the meanings of contemporary life? We

need to discover how it is that so many articulate, vital beings wish to withdraw to remote places or into hushed and private worlds. We need to know why so many thirst for reassurance or stretch their hands out towards an absolute which, they know, will put an end to striving. We need to find out the source of the literary concern with adolescence, of the tragi-comic fascination with the "man in the gray flannel suit". If the philosopher does not know these things, how can he define the meanings of our time? Without such definition, his proposals cannot be relevant to experience; and, if they are irrelevant, they are of no use to the public school.

There are books like Paul Bowles' *The Sheltering Sky* in which the collapse of values is shocking and extreme and the characters involved retreat into a desert of the primitive and, at last, into a psychotic dream. There are the novels of "hypersensibility", the works of Capote and Buechner and Stafford, in which all of reality becomes a mass of quivering impressions, in which a person is unable to go outside his own skin. It does us no good to discard these books as precious, intellectualized; there are far too many of them. It would seem more reasonable to take them as evidence of disturbance, of irritation, to recognize, while reading them, that men retreat in this manner when there is trouble, the kind of trouble that must challenge the philosopher.

In *Lie Down in Darkness*, a novel by William Styron, the young heroine says to her father, "I've wanted to be normal. I've wanted to be like everybody else. These old folks wouldn't believe that there are children who'd just throw back their heads and howl, who'd just die, to be able to say, 'Well now my rebellion's over, home is where I want to be, home is where Daddy and Mother want me'. Not with a sort of take-me-back-I've-been-so-wrong attitude—because, Bunny, you can believe me, most kids these days are not wrong or wrongdoers, they're just aimless and lost, more aimless than you all ever thought of being. . . ."[2] This book, first published in 1952, was called the best novel of the year by Maxwell Geismar and was widely read. Can we afford to ignore a theme of this kind? We may unearth the same attitudes in more solemn contexts, but it is unlikely that we will gain the same awareness of what they mean.

Much the same can be said about the fears which, we realize, haunt many people in a time like the present, anxieties due to the feeling of powerlessness which, we have long known, bring thinking to a stop. Perhaps the current concern with violence expresses these fears, indirectly, often symbolically. There is a book called *The Desperate Hours* by Joseph Hayes, not the sort of book which ordinarily takes up the philosopher's time. It has to do with an average, particularly decent family whose lives are, for a time, taken over by three escaped criminals. What stands out, however, is the spectacle of humanity at war with the irrational, the barbaric, with an evil that cannot be controlled by civilized means. The conflict here may well be expressive of something deep in modern experience, the horror before the uncontrollable, the paralyzing dread that stifles thought. In *Night of the Hunter*, by Davis Grubb, there is the same taste of fear, this time a fear that is linked with guilt and the image of children hunted through a sinister world.

VALUES A DUAL CONCERN OF PHILOSOPHY AND LITERATURE

It is important for the philosopher to know this fear and to seek its connection

[2]Page 341, Signet edition.

with cultural strain. When old allegiances and old securities no longer give support, men feel a fear like this and act very often like hunted children. Our awareness of this may be enough to stimulate the shaping of a new vision, if only to keep the faith. But what sort of vision? It, too, must be relevant to experience; and we must look to experience to find our clues.

Once again the literature may help. It is worth noting that it is the acknowledgment of responsibility in *The Desperate Hours* and *Night of the Hunter* which unties the knot of fear. The affirmation of relationship, the assertion of love provide solution; and here may lie our key. In Ralph Ellison's *The Invisible Man*, a novel about a young Negro whose humanity is hidden from the white world, the main character discovers that the act of communication, of writing out his bitterness, has helped resolve his conflict. "I denounce because though implicated and partially responsible, I have been hurt to the point of abysmal pain, hurt to the point of invisibility. And I defend because in spite of all I find that I love. In order to get some of it down I *have* to love."[3]. It is as Frankie says in Carson McCullers' *The Member of the Wedding*, ". . . I love the two of you so much and you are the we of me. Please take me with you from the wedding, for we belong to be together."[4] There is Augie in *The Adventures of Augie March* hunting along the "axial lines of life" and wanting to be himself and adopted as well; there is Holden Caulfield in *The Catcher in the Rye*, the adolescent in quest of personhood and reaching out for love.

Perhaps the problem is, after all, the individual at bay, the individual unsure of his relationship to the group, flattened by conformity, rendered helpless by fear, sterotyped by the gray flannel suit, and much afraid. There are alternatives for him, certainly, and many of these have taken shape in contemporary minds. Like Marjorie Morningstar, he can return to the traditional, to the company of the faithful; he can seek the Absolute like Faulkner's Corporal; he can surrender or he can find himself through membership. There are no clear answers; but a fascinating quest may open up if we utilize these materials for what they are worth.

The human being in search of value and fulfillment is the concern of literature, even as he is the concern of the philosopher and the schools. If we have learned anything, we have learned that we have constantly to reshape our approach to him because the world in which he lives is forever in flux. It may be that our present obligation is to deepen and enrich the freedoms already won, the freedoms which may be expiring in passivity and fear, and to redefine community as well, community which ought to be the affair of free and venturesome individuals in need of love. It may be and it may not be. We can only find out by exploring cultural experience. And we must leave no resource unused.

The texture of experience is closely woven; its patterns are infinitely involved. The task of discovering what *ought* to be communicated to the immature is never a simple one and requires a profound and cooperative effort on the part of scientists, philosophers, educators, and artists as well. Those concerned with such communication are forever engaged in what is essentially a moral enterprise, the effort to choose the more valuable among alternatives, to secure what makes for

[3]Page 501, Signet edition.

[4]Page 771, *The Ballad of the Sad Cafe*, Riverside Press.

fulfillment, to restructure what frustrates and restrains. Resolution can be achieved if problem is defined and if need is sharply known. The best the philosopher of education can do is to bring to this undertaking all the intelligence and sensitivity at his command. He must also atune a kind of "third ear" to the undercurrents in his culture and give up all claims to omniscience, to the spectator's point of view.

By cultivating awareness, by keeping context and variety of perspective in mind, by consulting the widest range of experiential materials, he may at last develop an objectivity, which is, after all, only the ability to integrate a number of points of view. If he is eager and humble and human, he will come to what is his proper goal, the definition of the relevant, the vision of what is possible and desirable in a culture whose future is fashioned in the schools.

SCIENCE, HISTORY AND A FRENCH REVOLUTION

(*Continued from page 142*)

scholarship. Of its two major effects there can be little doubt even after the rather brief experience of fifty years: fact-centered, scientific-historic scholarship filled an often empty rhetorical university curriculum with new substance and it produced a strong awareness of the educational needs of a democratic society. And, of course, it has brought to light many valuable results and findings in the disciplines to which it was applied.

SOCIETY AND EDUCATION

By ROBERT J. HAVIGHURST and BERNICE L. NEUGARTEN, both of the University of Chicago.

Written by two members of the Committee on Human Development at the University of Chicago, this new text presents the results of fifteen years of research on such vital topics to educators as the social class structure of America and the relations of the school to the social structure; race relations; the effects of the peer group and youth-serving agencies such as the Scouts, YMCA, church organizations, comics, TV, upon the child and adolescent.

The book examines the educational system from two points of reference: first, how it acts as the agent of the society it serves; second, how the school influences the social development of the child. It includes chapters on new topics just now coming into the field — topics such as the social life-space of the child, increased heterogeneity in social origins of teachers, the career lines of teachers, and so on.

465 pages *6" x 9"* *Published February, 1957* *Text List $5.75*

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THE PROBLEM OF CONFLICTING MENTALITIES

BY J. H. SINCLAIR

A GENERATION AGO PROFESSOR CHILDS PUBLISHED A BOOK, entitled, *Education and the Philosophy of Experimentalism.* In this he was primarily interested in presenting the ideas of the experimentalist: first, concerning the necessity of a continuous re-evaluation of our traditions, beliefs and institutions in meeting the needs of modern society; secondly, concerning the use of the experimental attitude and method as instruments in solving the social problems of the day; and, finally, the place of education in it all. Dr. Childs was exceptionally successful in accomplishing his purpose and his book is an excellent example of skill in organizing as well as clarity in thinking and writing.

Unfortunately the great hope and expectations of the experimentalist of an earlier day have not been realized and a reconsideration of some of their positions in the light of subsequent social and educational events is in order. The past generation has witnessed the greatest expansion of formal education in history, especially in the United States. It has also witnessed the passing of unregimented society. That there may be a relationship between these two events is more than a possibility. We shall begin then with what Professor Childs called the problem of the day—the existence of two mentalities: the first, experimental; and the second, not clearly labelled. In contrasting them he describes the former as "the mind reflected in our technological civilization (modern industry is so much applied science)", as well as in science, and the second one he recognizes in a general way as "exhibited in skyscrapers that omit the thirteenth floor . . . in fundamentalists whose belief in an infallible book prompts them to pass laws prohibiting the teaching of scientific theories about the origin of man; in the modernist who attempts to dispose of complex social problems by telling what an earlier religious leader would do were he now here to; . . . in the tenacious way in which the humanist leaders cling to the belief in a golden age in the past."[1] Furthermore he pointed out that *these two mentalities sometimes existed in the same individuals.*

The conflict between these mentalities had previously been dramatized in the early years of the twentieth century in a philosophical war between pragmatism and intellectual absolutism in which James, Dewey and other leaders of the former philosophy ineffectually stormed the ramparts of intellectualism with the instruments of science and inspired courage, only to see their efforts frustrated against the nebulous defenses of the disembodied mind of the world of spirit.

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[1]John H. Childs, *Education and the Philosophy of Experimentalism* (New York: The Century Co., 1931), p. 37 ff.

While today's problem is not different in nature from that of a quarter of a century ago, it is much more acute. We need to be more aware of the nature of the second mentality and to recognize that it exists not only in some individuals but normally in all individuals *including scientists and pragmatists*. Perhaps it might be permissable to suggest that the first mentality is inherited through the genes in the structure of the organism; and the second mentality, in the culture of the race. Since racial culture, especially our religious and academic heritage, moulds our mentalities at an early age we accept without protest or question the vague and contradictory ideas of mind passed on to us by indoctrination.

In order to prevent confusion in this paper in connection with terms, the first mentality will be identified as the natural, biological or experimental; and the second, as the supernatural, disembodied or speculative. The former will be labelled biological intelligence and will be used here to mean an evolved quality of adjustive behavior, the main features of which are discoverable in evolution and in the structure of the organism. In the general course of evolution, adaptation to physical environment as a process is characterized by increasing complexity of both organic structure and environment, accompanied by a shift, figuratively speaking, in the center of gravity of the process from environment to organism. In simple stages the environment dominates the process; in complex stages the organism dominates. This shift in control in adjustment from environment to organism is what is meant here by biological intelligence. Intellectual authoritarianism here includes intellectual absolutism, abstract intellectualism, idealism as well as the practice of the selection of some individuals as experts or authorities in some humanistic field, based on the assumption of superior intellect and training. Such individuals become the custodians of culture and thereby determine the quality of our social adjustment, through education. The general viewpoint from which these two mentalities will be considered might well be characterized as a biologically-based philosophical approach.

AN OVERALL VIEW OF BIOLOGICAL EVOLUTION

Viewing biological evolution as a process reveals an overall experimental quality in its progress. It seems to be largely a matter of trial and error; of experimental progression from the simple and stable to complex and unstable forms of organization—the latter selected as fit to survive in a continuously evolving complex environment.[2] One notes in developing organic structure a continuity of the fixed and the variable: continuity of interaction through sense-structures, motor equipment and connective mechanism with chance variation in each of these major functioning divisions of the organism. In earlier evolutionary stages the emerging adjustive principle seemed to be physical force in the form of physical equipment for attack or flight. Motor equipment was emphasized in huge and powerful bodies or defense armor at the expense of sense organ and

[2]Julian Huxley in *Evolution In Action* (New York: Harpers, 1953, p. 7), writes: "At first sight the biological sector seems full of purpose. Organisms are built as if purposefully designed, and work as if in purposeful pursuit of a conscious aim. But the truth lies in those two words 'as if'. As the genius of Darwin showed, the purpose is only an apparent one. However, this at least implies prospective significance. Natural selection operates in relation to the future—the future survival of the individual and the species."

nervous system. This adjustive pattern reached a culmination in the dinosaur, well illustrated by the stegosaurus with a brain no larger than a walnut, and a nerve ganglion located in the hip twenty times larger than the brain, controlling the movements of the hind limbs and powerful tail. This type of adjustment by means of physical force, while a blind alley in evolution, is retained in both sea and land organisms—the whale and elephant as illustrations of size; and the autonomic systems of all organisms as the mechanism controlling primitive, fixed and stable adjustment by attack and flight. Since the time of the dinosaurs evolutionary selection has emphasized the developing central nervous system of the mammal in place of the motor.

The structure and evolution of the nervous system are naturally of prime importance in any attempt to understand biological intelligence. They reveal the order of development of adjustive patterns from simple to the complex. Its two divisions—the autonomic and the central—function together but the differences in mentality among individuals is largely determined by which one of the divisions dominate in controlling the adjustive response. The autonomic division, being ancient in structure, is simple and stable. It ordinarily controls most animal and much of human behavior. However, since human beings have a much more highly developed central system than the animal, human behavior, even when autonomic and emotional in its quality, is, at the same time, more complex in being expressed in symbolic form: verbal aggression and defense.

The story of the emerging mind is the most important part of the larger story of biological evolution. Its general outline appears in the observation of the activities of the one-celled organism which displays its fundamental features in the amoeba's behavior within its physical and social environment. This behavior consists of contact with the environment through its own capacity to be stimulated by chemical forces and its response in reacting by taking into its own system what it is capable of using for its own ends and in withdrawing from contact when the conditions are unfavorable. In addition to this characteristic, another fundamental feature is observed, viz., reproduction. Here the creative ability of life is displayed not only in the reproduction of the cell itself but in the creation of a new environment—the social environment. Further observation reveals the cell's social capacity: the capacity to cooperate by specializing its structure and by becoming an integral part of an organized society of cells—the organism. This view of life in its simplicity presents its main features: to repeat, capacity to be stimulated physically; ability to respond by movement and to seek and take from the environment what it needs for its continued existence; to reproduce. This is the adjustive process: within it body and mind, like two faces of a coin, are integrated and the larger story of evolution is the story of life becoming organized on the grand scale.

NATURAL OR BIOLOGICAL MENTALITY-INTELLIGENCE

If we look at the organism from the viewpoint of adjustment, we recognize three different types of basic mechanism: the receptors or specialized sense-organs which make possible contact with the physical environment; the effectors—muscle and glands—which are the basis of action on the environment; and the

connectors or nerve mechanisms connecting these specialized segments of the organism. The adjustive quality of the organism's response to the stimulating situation is determined by the complexity of the nerve patterns involved in the organized response. This in turn is largely a matter of which division of the nervous system is dominantly involved in the integration—the autonomic or the central. Dr. Cannon distinguishes these two on the basis of function; the former "acting inwardly on the viscera and governing principally the internal environment"; the latter "acting outwardly in relation to the external environment of the individual".[3] In human behavior the former is the source of drive and motivation, while the latter is generally the organizing factor of adjustive response.

The autonomic system is relatively ancient and fixed. Its adjustive principle is the mobilization of the energies of the organism for emergency response of attack and retreat. In this connection its specific mechanisms facilitate the meeting of each organic need associated with the violent action of combat and flight even to the necessary chemical modifications of the blood involved in clotting. This division has direct connections with the neuro-muscular organization through centers in the brain stem, making many appropriate adjustive responses mechanical and immediate. It is a structure facilitating survival in a primitive environment in which physical strength and speed are the survival factors. It is the physical basis also of our emotions of anger and fear as well as those associated with sex. This primitive system which makes for successful adjustment in a primitive environment is the natural cause of much maladjustment in the complex man-made modern environment. At the same time it is fundamental in human experience and were it eliminated all motivation and human satisfactions would go with it. It also still serves its primitive function of attack and retreat, often with disastrous consequences, in individual and group behavior in our confused modern world. Its relation to the mentalities will be developed later.

The cortical division of the nervous system is relatively new and its exceptional development in man is the basis of his humanity. As Gray describes it, "One can trace the evolution of this 'master tissue of the human body' from fish to man, and observe brain part after brain part originate as each succeeding species becomes better adapted to the complex conditions of life on land, more versatile in its capacity for survival—and more intelligent. Similarly in the developing human embryo the brain forms by the dual process of multiplying the number of cells and increasing their specialization."[4] Experimental studies of the cortex have brought to light connections between centers in the various lobes and patterns of behavior, which are the framework of intelligent action. In this connection it is interesting to note that the motor centers in the frontal lobe are important factors in intelligence, and that "in man more than three fourths of the roof-brain is occupied by association areas." This is especially significant in connection with the differentiating function of symbols in the two mentalities. The findings of twelve years of experimental study of the effects of the loss of the prefrontal region as reported in *Brain and Intelligence* by the

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[3]Walter B. Cannon, *The Wisdom of the Body*, Rev. Ed. (New York: Norton, 1939), p. 244.

[4]George W. Gray, *The Great Ravelled Knot*, in *Scientific American Reader* (N. Y.: Simon & Schuster, 1953), p. 493.

psychologist Ward C. Halstead is summarized by Gray as follows: "that biological intelligence is represented throughout the cerebral cortex; that its representation is not equal throughout; that it reaches it maximum in the cortex of the frontal lobes. Dr. Halstead concludes that 'the frontal lobes,' long regarded as the silent areas, are the portion of the brain most essential to biological intelligence."[5]

BEHAVIOR PATTERNS IN BIOLOGICAL INTELLIGENCE

The human brain differs from the brains of animals in complexity rather than in fundamental gross structure. In both cases they are mechanisms of adjustment consisting of sensory, motor and association areas. In keenness of sense, various animals may show some superiorities to humans—eagles for example apparently can see small animals from a great height—but no animal can observe in the systematic way a trained human can. In the latter case, most of the nerve mechanisms involved are in the cerebral cortex and are functionally developed in the course of training, while the animal sees rather than observes—mostly a matter of sense-organ functioning. In all species a selectivity and special development of one or more sense-organs are associated with some specific uniquenesses in the animal's adjustive behavior. In man, vision is functionally the primary sense and man's own inventions increase extraordinarily the physical limits within which his eye can function.

Perhaps the most important feature to emphasize in connection with the role of sense-organs in adjustment is their general function of keeping the organism always in contact with its environment. Prolonged loss of contact means death. A human infant born with non-functioning sense-organs can never develop a mentality beyond that of the vegetative stage. Equally important, also, is the fact that the receptor mechanisms automatically determine the limits of all possible human knowledge. Furthermore, individual differences among humans in varying abilities to observe is worthy of note although this difference seems to be primarily a matter of training. Even Darwin was astounded at what he failed to see as a student in comparison with his later more mature observations of the same scene. The quality of the intelligent response is conditioned by the ability to observe.

It is in the association areas of the cortex, however, where we find many of the features differentiating men from animals and man from man. These areas are connected with the sensory centers on the one hand and the motor centers on the other. In addition, association fibers connect individual adjacent centers in an integrated pattern which determines larger patterns of behavior—such as the visual centers in the occipital lobe in visual perception. In a similar way, more distant centers in other lobes are connected so that the integrated response is controlled by the brain, acting as a whole. It is interesting to note here that no individual brain is ever functionally integrated in any degree comparable to its theoretical potentialities since there are billions of neurons in the cortex and their pattern organizations are acquired through action and use. Inherited integrations are largely confined to the autonomic division.

This conception seems to be supported by the behavior patterns of our most

[5]Op. cit., p. 508.

competently trained men—our scientists. All scientists are necessarily specialists, which means that their training and creative discoveries are confined to a relatively narrow field of adjustive activity. As specialists, their scientific behavior is definitely standardized in a multitude of details which are the basis of their objectivity in their professional work. However, even this limited segment of scientific behavior could never be developed in any individual in a lifetime were it not for the social nature of science. By this is meant that science as the body of organized knowledge is the cumulative achievement of specializing groups of researchers, living as well as the dead and those yet unborn. All are cells, as it were, in an organic society, the integrating principle of which is a common quality of behavior which leads to discovery in detail of the organization of nature as represented by their special fields. All knowledge in reality is a social product of co-operating individuals. The scientific method is indeed merely the complex of these common behavior patterns which make up the laboratory habit of mind but it represents the evolved adjustive mechanism in its most highly developed form. At the same time, this type of behavior is observable in varying degrees of development in the exploratory, experimental, tool-using, purposeful behavior involved in satisfactory adjustment which constitutes biological intelligence.

The integrating principle of biology is the evolutionary hypothesis. It is a mental tool which discovers the biological process of continuity from the simple to the complex; from cell to organized humanity. The evolving of biological intelligence out of the adjustive process, beginning with the amoeba, discloses a biological creativity which starts with mechanical adaptation, fundamentally chemical and fixed, through increasingly complex and variable trial and error, tool-using, inventive stages culminating in the potentialities of the central nervous system of modern man.

One of the most important factors in the emergence of modern man was the racial discovery of the use of the symbol in social adjustment. He evolved with the developing ability to use symbols as *mental tools* first to communicate and thus integrate individuals into society—a new evolutionary achievement in organization; later in using the symbol as a structural instrument for the organization of consciousness into an adjustive mentality with unlimited horizons in time and space. This follows as the result of the ability to employ the symbol to objectify the adjustive meaning abstracted from the adjustive process in the form of a tool—the concept—which becomes not only a structural unit in evolving organized intelligence but also a tool for continuous organizing and for the experimental discovery of the order of nature itself. At this point biological intelligence can be defined as the ability to learn from experience; the ability to know; to know how; to understand and to control the adjustive process through experimentation.

Elaborating a more detailed and organized view of adjustive behavior constituting biological intelligence reveals that it is first of all an acquired, delayed response in contrast with the immediacy of physically inherited autonomic behavior. The delay is necessary and functional in that it makes possible an ideally organized, adjustively purposeful response for experimental action. Since this is an acquired response, it is secondary to the naturally inherited response of the autonomic system and it cannot be made in most of our social adjustments unless an active inhibition of the latter mechanical response is first established by practice.

In brief, fixed mechanical adjustment is gene-inherited and will function automatically in the appropriate situation unless intentionally prevented; whereas variable, experimental response has to be established by persistent voluntary practice.

Since intelligence is merely the quality of the adjustive process, the three phases of it are never separate in practice and the theoretical separation for descriptive purposes is justified only to the extent that it facilitates an understanding of the integration. The motor aspects have already received some attention in the consideration of the association centers. In addition, we can distinguish the functions of the latter as that of constructing an idea-pattern for the determination of the response-pattern, while the function of the motor centers (previously noted as primarily in the fore-brain) are executive. This is in correspondence with the emphasis that Dr. Halstead put on the fore-brain as fundamental to the functioning of intelligence. Because all of the activity up to this point is adjustively preparatory, it has no significance at all until it is objectified in adjustive response which can be evaluated in terms of its adjustive consequences. It is the culminating response in discovery.

THE SUPERNATURAL, SPIRITUAL OR SPECULATIVE MENTALITY-INTELLECT

All human behavior is the result of the organizing process of the nervous system: the central and the autonomic divisions working together. The difference in mentalities, however, is explained by the different combinations of these divisions in the determination of the qualitive adjustive response. In intelligent behavior, the central system organizes and controls the response. In intellectual behavior, the autonomic system controls the response.

While that is the fundamental difference between these mentalities, neurologically, it does not mean that the central system is not involved in a complex way in the behavior of the intellectual. From a neurological viewpoint, the intellectual represents an exceptional development of the association centers of the cerebral cortex (as well as the speech centers) with neglect of development (due to lack of exercise) of both sensory and adjustive motor centers. To translate neurological structure into behavior patterns, it means that the intellectual is a specialist in the manipulation of symbols, not as experimental tools for subsequent use in the control of natural events in experience, but as ends-in-themselves representing a supernatural reality. His failure to cultivate the habits of observation and of central organization of his adjustive motor responses is a natural consequence because both of these mechanisms are adapted only to a physical world. Of course, this is true only in a general sense and from a comparative viewpoint.

This symbolic world is a social product which has its roots deep in the past. It is the cumulative result of the activity of a succession of groups of culture specialists who have created this aspect of our culture including among others, the primitive medicine man, pagan priests, later religious leaders and seers, philosophers and academics in general, ancient and modern. The one principle which binds all of these groups together is that of the separation of mind and body and the subsequent symbolic development of a disembodied mind or spirit. This is humanity's social heritage and is so fundamental in the daily life of every human being that it is as real as sense-perception. As implied in Professor Child's

statements, the mentality involved assumed many forms: primitive superstitions, devout religions, sophisticated philosophies—abstract intellectualism, intellectual absolutism, idealism and academic humanism and authoritarianism.

There are two important observations that can be made on this mentality: first, it is not intelligent (the two are generally confused); secondly, it does nevertheless have a dominant influence on our social adjustments for a number of reasons, but principally, because it appeals to our emotions. It is the latter aspect that demands intelligent consideration by our educators and leaders. Complex modern society cannot exist in peace and freedom unless intelligent behavior is fostered in individual and group.

A number of social consequences follow from the fixed and final nature of intellectual absolutism. Primarily, it is an undemocratic philosophy. For Plato, only philosophers had a sixth sense. That being so, authoritarianism logically follows: only the few know or can know. These are the custodians of the changeless truths of the supernatural world and are socially recognized as such. They transmit these truths to the uninitiated through education. This is indoctrination. Another social consequence which naturally follows is the leadership principle in social organization; loyalty to the leader. The most convincing evidence of the social effect of the great expansion of higher education in this country at present is the indifference with which the loss of the opportunity to vote for principle instead of men is generally accepted. Indicative too of the effect of the increased spread of this mentality and philosophy is the inhibition of intelligence recognizable in the fact that we are no longer able to learn by experience in connection with our observation of the loss of liberty which followed the practice of this principle by Mussolini in Italy and Hitler in Germany. More indicative still is the fact that many of us cannot recognize the principle when we see it in action. We fail to identify the tyranny in Russia when labelled communism, with that of fascism.

About a half century ago Professor Perry expressed some of these same ideas about idealism:

> "In the first place, it is to be remarked that idealism is not at heart sympathetic with the modern democratic conception of civilization. Idealism, it is true, is an *idealizing* philosophy. But the ideal this philosophy glorifies is not the gradual amelioration of life through the human conquest of nature; but rather the perfection that was from the beginning and is forever more."[6]

Further he quotes Hobhouse in the same critical mood: "In the course of his well known indictment of idealism, Mr. Hobhouse writes as follows."

> Indeed, it is scarcely too much to say that the effects of idealism on the world in general has been to sap intellectual and moral sincerity, to excuse men in their consciences for professing beliefs which on the meaning ordinarily attached to them they do not hold, to soften the edges of all hard contrasts between right and wrong, truth and falsity, to throw a gloss over stupidity and prejudice, and caste, and tradition, to weaken the bases of reason, and to disincline men to the searching analysis of their habitual ways of thinking.[7]

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[6]Ralph Barton Perry, *Present Philosphical Tendencies* (N. Y.: Houghton & Mifflin, 1912), p. 188.

[7]L. T. Hobhouse, *Democracy and Reaction*, pp. 78–79. Quoted by Perry, *ibid.*, p. 189.

CONCLUSIONS

The failure of the experimentalist of a generation ago to achieve his very worthy educational and social ends was not a failure of experimentalism as a philosophy but rather the personal failure of the experimentalist, himself, to distinguish clearly the two mentalities that he had inherited from his physical and spiritual ancestors. The high-priests of progressive education of that promising period were half intellectual authoritarians and half experimentalists who failed to realize that an experimentalist's philosophy exists not in verbal symbols or in his skills in manipulating them but rather in the quality of his adjustive behavior. That his educational program was a failure is a logical conclusion from the absence of any evidence of increase in intelligence or of democratic faith and practice in today's society in comparison with yesterday's.

The failure of his educational program occurred in the shift from words to deeds. He could not escape his own academic heritage of seeing education as doing something to somebody—in his case imposing intelligence and democracy on the child. In his teaching, therefore, his escape from the indoctrinating faith of his intellectual brethren of the academic world was more verbal than real. He had no understanding of the mid-wife function of the teacher, to borrow an idea from Socrates, as something connected with the birth of ideas. Finally, he reverted to intellectualism completely when he transferred his faith in the achievement of a good society from creative education to politics and legislation. A simple, authoritarian society can easily be achieved by educational indoctrination and legislation; but only an intelligent educational program can produce a free society.

Today only in the physical sciences is our vision clear. There are no social sciences: instead, only the clash and conflict of authoritarian opinion and the resulting social confusion. In this field intellectual authoritarianism reigns supreme and, in alliance with politics and power-seeking politicians, has shaped and is shaping the social and political world of our times. Unfortunately for society the intellectual in freeing himself from his body has also freed himself from mental objectivity. The body is the basis of intelligence and in comparison with the culture of the intellectual, the wisdom of the body, as Dr. Cannon phrased it, is the greater adjustive wisdom, based as it is on two billon years of evolutionary progress carried by the genes, as against a few thousand years of human culture. In further clarification the intellectual's wisdom is identified with the *possession* of cultural 'knowledge' in contrast with that of the biologist which results from his *using* the cumulative racial experience in his socially co-operative program of discovering the nature of life.

Whether or not any degree of freedom can survive in an intellectualized world where nature is still selecting intelligence is a question, the answer to which is concealed in future events. This is not to suggest that the supernatural or speculative mentality has no place in human experience. It does mean, however, that its interests are in the spiritual world in the literal meaning of that term and that the intellect is adapted to that field of experience in co-operation with religion; and not to the solution of the problems of human adjustment. As indicated above Nature has selected intelligence for that function.

A THEORY OF DISCIPLINE

(*Continued from page 111*)

character and in academic skills—are not evaluated as exclusive of each other.

c. Fixed and specific objectives, which may be thought of as corresponding to problems in inquiry, are found only when the process of learning is well along and their attainment already in prospect. Therefore daily evaluation before these objectives emerge must be in terms of aims which correspond to purpose, being less clearly defined than is a problem.

d. Fixed and specific objectives, whenever they have a functional place in process of learning, must be arrived at as problems are achieved: through the process of inquiry (learning) itself. If they are imposed from without, like an externally dictated order, they cannot guide activity in the liberating way that advances inquiry (and learning). If they are imposed from without, they restrict rather than facilitate the learning process, and their effect on the teacher is frustrating.

THE FUNCTION OF SOCRATES' EDUCATIONAL METHOD

(*Continued from page 138*)

Greek city's disorganization. So far as its actual work was concerned it was, of course, inadequate to the pressures of Greek society. The Greek cities lost their independence in any case and we have no record of any appreciable effect of the Academy in staying the outcome. If we date the decline of Greco-Roman civilization with the Peloponnesian wars, as Toynbee does, then the Academy had no appreciable effect upon the gradual, and then hastening disorganization, of that civilization.

Indeed, so far as the records go, it seems clear that far from the Academy staying the decline of Greco-Roman society, that decline gradually enfeebled and then brought down the life of reason itself. Everyone knows how with the loss of liberty and with the recurrent anxieties of wars and civil wars and the like, philosophers were impelled to seek not so much critical and creative inquiry but peace of mind; the Cynics, the Sceptics, the Epicureans and the Stoics are testimony to that; and how, after the terrible troubles of the Empire, reason could no longer afford even a haven of serenity, let alone of creativity. The history of reason in the Greco-Roman world, from its inception among the Milesians to Socrates, Plato and Aristotle, and its subsequent loss of vitality and final extinction, is well known. It is also well known that the course it took after Socrates was in response to the political and social events of the Greco-Roman world and not that the events of that world were a response to it.

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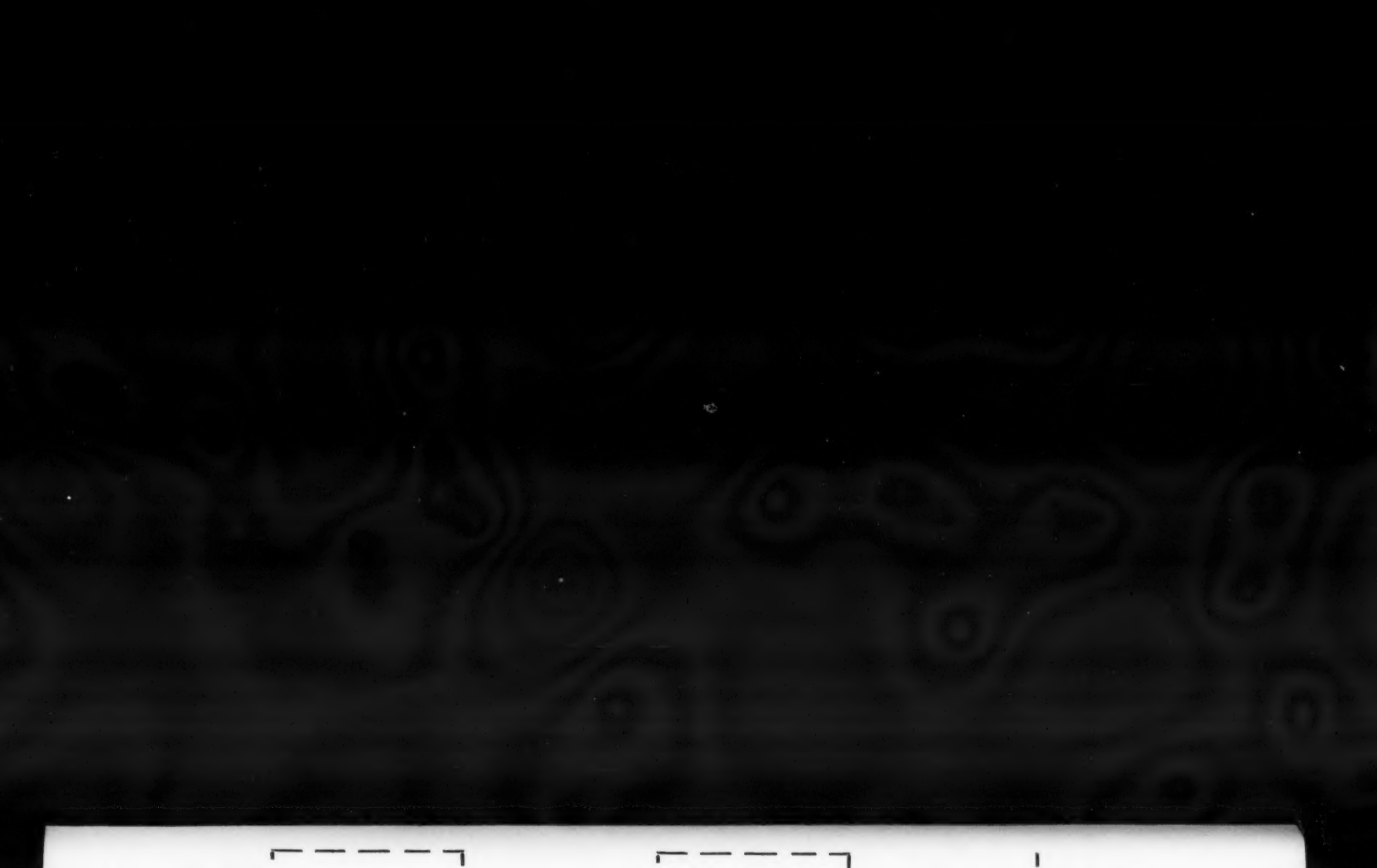
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